TATA MEMORIAL CENTRE
Advanced Centre For Treatment, Research And Education In Cancer. (ACTREC)
Kharghar Node, Navi Mumbai – 410210
A GRANT-IN-AID INSTITUTE UNDER DEPARTMENT OF ATOMIC ENERGY, GOVERNMENT OF INDIA

NAME OF WORK:

"SITC of central surveillance system at ACTREC campus."

E-TENDER NOTICE

NIT No. : TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024

NAME OF THE AGENCY	

Engineering services, Second Floor, Khanolkar Shodhika, Phone: 022 6873/2740 5000 Ext 5710 ,5111 ,Contact No : K Suthar: 8320898363 ; V. Khair : 9820698313,
E. Mail : tender.engg@actrec.gov.in, hkelkar@actrec.gov.in, ksuthar@actrec.gov.in, vkhair@actrec.gov.in

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NIT FOR WEBSITE

Advanced Centre For Treatment, Research And Education In Cancer. (ACTREC)

Kharghar Node, Navi Mumbai – 410210

A GRANT-IN-AID INSTITUTE UNDER DEPARTMENT OF ATOMIC ENERGY, GOVERNMENT OF INDIA

PREQUALIFICATION CUM NOTICE INVITING e-TENDER

NIT No.: **TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024**

Engineer, invites tender on behalf of TATA MEMORIAL CENTER ACTREC, Kharghar Node, Navi Mumbai, invites online item rate tender (in two bids) from eligible contractors for the work of **"**SITC of central surveillance system at ACTREC campus**".** The details are given below.

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING

PART A: GUIDELINES FOR E-TENDERING :-Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:https://eprocure.gov.in/eprocure/app**.**

1. REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:https://eprocure.gov.in/eprocure/app) by clicking on the link "**Online bidder Enrollment** "on the CPP Portal which is free of charge.
2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that he do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC /e-Token.

2. SEARCHING FOR TENDER DOCUMENTS

There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.

1) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective 'My Tenders 'folder. This would enable the CPP Portal to intimate the bidders through SMS/e-mail in case there is any corrigendum issued to the tender document.
2) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3. PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "MySpace" or ''Other Important Documents'' area available to them to upload such documents. These documents may be directly submitted from the "MySpace" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: *My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.*

4. SUBMISSION OF BIDS

1) Bids shall be submitted online only at CPPP website : https://eprocure.gov.in/eprocure/app
2) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
3) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
4) Bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.
5) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents.The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
6) The agency shall download the pre bid clarification if any for the work and upload the same (scanned copy) duly signed and sealed. The revised documents (if any) shall be uploaded in e tender portal.
7) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given asa standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the SKY BLUE colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should bechanged. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
8) Financial bid to be submitted ONLINE ONLY and hard copy are NOT to be submitted.
9) Tenderers are advised to upload their documents well in advance, to avoid last minutes' rush on the server or complications in uploading. ACTREC/TMC, in any case, shall not be held responsible for any type of difficulties during uploading the documents including server and technical problems whatsoever.
10) Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
11) The server time (which is displayed on the bidders' dashboard) will be considered as thestandard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

12) **Hard copy of Technical Bid is to be submitted and endorsed at security main gate before last date & time of submission and must be signed with stamp/seal on all pages with numbering and spiral binding to each all documents**.

13) It may please be noted that both hard copy and soft copy of technical bid are required i.e. uploaded version in CPPP website and Hard copy submission before due date and time. If agency unable to do so will be disqualified.

14) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

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16) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

17) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

18) Intending Bidders are advised to visit this website regularly till closing date of submission to keep themselves updated as any change/ modification in the tender will be intimated through this website only by corrigendum / addendum/ amendment.

5. ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

6. PURCHASE PREFERENCE POLICIES OF THE GOVERNMENT

1) Bidders have to adhere with OEM of order No. P-45021/2/2017-PP(BE-11) dated 04.06.2020, (PPD) F.No.6/18/2019-PPDdated 23.07.2020, No. P-45021/2/2017-PP(BE-11) dated 16.09.2020 during bidding stage and execution stage.

2) The Tender is non-divisible in nature.

Unless otherwise stipulated in TIS/ AITB, the Procuring Entity reserves its right to grant preferences to the following categories of eligible Bidders under various Government Policies/ Directives:

1) Class I Local Suppliers under Public Procurement (Preference to Make in India) Order 2017" (MII) of Department for Promotion of Industry and Internal Trade, (DPIIT - Public Procurement Section) as revised from time to time.
2) Bidders from Micro and/ or Small Enterprises (MSEs) under Public Procurement Policy for the Micro and Small Enterprises (MSEs) Order, 2012 as amended from time to time.
3) Start-ups Bidders under Ministry of Finance, Department of Expenditure, Public Procurement Division OM No F.20\212014-PPD dated 25.07.2016 and subsequent clarifications; and/ or
4) Any other category of Bidders, as per any Government Policies, announced from time to time, if so provided in the TIS/ AITB

1.1. Make in India Order

Orders issued by the Government of India regarding eligibility to participate and for purchase preference to "Local Suppliers" to encourage 'Make in India' and promote manufacturing and production of goods and services in India shall apply to this procurement, as detailed below.

1.1.1 Categories of Local Suppliers

Bidders/Contractors are divided into three categories based on Local Content. Local content in the context of this policy is the total value of the service procured (excluding net domestic indirect taxes) minus the value of imported content in the service/ incidental Goods (including all customs duties) as a proportion of the total value, in percent):

1) 'Class-I local Supplier' with local content equal to or more than that prescribed in TIS or 50% if not prescribed.
2) 'Class-II local Supplier' with local content equal or more than that prescribed in TIS or 20%if not prescribed, but less than that applicable for Class-I local Supplier.
3) 'Non - Local Supplier' with local content less than that applicable for Class-II local Supplier, in sub-clause above.

1.1.2 Eligibility Restrictions based on Reciprocity.

If so stipulated in the Tender Document, entities from such countries identified as not allowing Indian companies to participate in their Government procurement shall not be allowed to participate on a reciprocal basis in this tender. The term entity of a country shall have the same meaning as under the FDI Policy of DPIIT as amended from time to time.

Eligibility to participate

4) **Minimum local content for eligibility to participate**: Only bidders meeting the minimum prescribed local content for the product shall be eligible to participate subject to the following conditions.
5) **Classes of Local Suppliers eligible to Participate:** Based on the Make in India Policy, classes of local/ non-local Suppliers eligible to participate in the tender shall be declared in TIS/ AITB/ Schedule of Requirements. If not so declared, only Class-I and Class-II local Suppliers shall be eligible to participate and not non-local Suppliers.

1.1.3 Thresholds

6) Following thresholds shall be declared in the Tender Document.

   a) **Minimum local content for Contractor classification:** local content percentage prescribed to qualify as Class-I or Class-II local Suppliers for various products
   b) **Minimum local content for eligibility to participate:** Minimum local content percentage prescribed for eligibility for a bid to be considered.
   c) **The margin of purchase preference:** The bid price quoted by Class-I Local Supplier should be within this percentage from the L-1 price quoted by Non-local or Class-II bidders for being eligible for purchase preference.

7) If not so declared, the default threshold shall be as follows:

   (a) Local content for eligibility for Class-I; Class-II local Suppliers and Non-local Suppliers shall be 50% and above; 20% and above but less than 50%; and less than 20%, respectively.
   (b) Minimum local content for eligibility to participate shall be 50%,
   (c) The margin of purchase preference shall be 20%

1.1.4 Purchase preference to Class-I local Suppliers

8) Where the Services are divisible by nature:

   d) Among all qualified bids, the lowest bid shall be termed as L-1. If L-1 is 'Class-I local Supplier', the contract for full quantity shall be awarded to L-1.
   e) If the L-1 bid is not a 'Class-I local Supplier', 50% of the order quantity shall be awarded to L-1. After that, the lowest bidder among the 'Class-I local whose quoted price falls within the margin of purchase preference shall be invited to match the L-1 price for the remaining 50% quantity, and a contract for that quantity shall be awarded him, subject to matching the L-1 price. In case such lowest eligible 'Class-I local Supplier' fails to match the L-1 price or accepts less than the offered quantity, the next higher 'Class-I local Supplier' within the margin of purchase preference shall be invited to match the L-1 price for the remaining quantity and so on, and the contract shall be awarded accordingly. If some quantity is still left uncovered on Class-I local Suppliers, such balance quantity shall also be ordered on the L-1 bidder.

9) Where the Services are not divisible, and in the procurement of Services where the bid is evaluated on price alone:

   f) Among all qualified bids, the lowest bid shall be termed as L-1. If L 1 is 'Class-I local Supplier', the contract shall be awarded to L-1.
   g) If L-1 is not 'Class-I local Supplier', the lowest bidder among the 'Class-I local Supplier' shall be invited to match the L-1 price subject to Class-I local Supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local Supplier' subject to matching the L-1 price.
   h) If such lowest eligible 'Class-I local Supplier' fails to match the L-1 price, the 'Class-I local Supplier' with the next higher and so on, bid within the margin of purchase preference shall be invited to match the L-1 price, and the contract shall be awarded accordingly. If none of the 'Class-I local Supplier' within the margin of purchase preference matches the L-1 price, the contract shall be awarded to the L-1 bidder.

10) Where parallel contracts are to be awarded to multiple bidders: In Bids where parallel contracts are to be awarded to multiple bidders subject to matching of L-1 rates or otherwise, the 'Class-I local Supplier' shall get purchase preference over 'Class-ll local Supplier' as well as 'Non-local Supplier', as per following procedure:

i) If there is sufficient local capacity and competition for the service to be procured, as notified by the nodal Ministry, only Class I local Suppliers shall be eligible to bid. As such, the multiple Contractors, who would be awarded the contract, should be all and only 'Class I, Local Suppliers'.

j) In Bids, other than those mentioned above, 'Class II local Suppliers' or both 'Class II local Suppliers' and 'Nonlocal Suppliers' may also participate in the tender process along with 'Class I Local Suppliers'. If 'Class I Local Suppliers' qualify for the contract award for at least 50% of the tendered quantity in tender, the contract shall be awarded to all the qualified bidders as per award criteria stipulated in the Tender Documents. However, in case 'Class Local Suppliers' do not qualify for the contract award for at least 50% of the tendered quantity as per award criteria, purchase preference should be given to the 'Class I local Supplier' over 'Class II local Suppliers'/ 'Non-local Suppliers' provided that their quoted rate falls within the margin of purchase preference of the highest bid considered for award of contract. To ensure that the 'Class I Local Suppliers' taken in totality are considered for award of contract for at least 50% of the tendered quantity, first purchase preference has to be given to the lowest among such eligible 'Class-I local Suppliers', subject to its meeting the prescribed criteria for the award of contract as also the constraint of the maximum quantity that can be sourced from any single Contractor. If the lowest among such 'Class-I local Suppliers' does not qualify for purchase preference because of aforesaid constraints or does not accept the offered quantity, an opportunity shall be given to next higher among such 'Class-I local Supplier', and so on.

1.1.5 Verification of local content and violations:

11) The 'Class-I local Supplier'/ 'Class-II local Supplier' at the time of tender, bidding, or solicitation shall be required to indicate the percentage of local content and provide self-certification that the service offered meets the local content requirement for 'Class-I local Supplier'/ 'Class-II local Supplier', as the case may be.
12) In cases of procurement for a tender value above Rs. 10 crores, the 'Class-I local Supplier'/ 'Class-II local Supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practising chartered accountant (in respect of Contractors other than companies) giving the percentage of local content.
13) Complaints about Local content declarations may be made through the channels of Procuring Entity. Procuring Entities and Nodal Ministries may prescribe fees for such complaints.
14) Bids with false declarations regarding Local contents shall be rejected as responsive, in addition to punitive actions under the MII orders and for violating the Code of Integrity as per the Tender Document.

1.1.6 Manufacture under license/ technology collaboration agreements with phased indigenization

15) If so, declared in TIS and/ or AITB, foreign companies shall enter into a joint venture with an Indian company to participate.

16) The Procuring Entity reserves its right, but without being under any obligation to do so, to grant exemption from meeting the stipulated local content to Bidders manufacturing indigenously a product developed abroad under a license from a foreign manufacturer (who holds intellectual property rights) under a technology collaboration agreement/ transfer of technology agreement with a precise phasing of increase in local content. Bidder must obtain such an exemption letter and submit it along with his bid to avail such an exemption.

1.1.7 Information to be provided by Bidders regarding Make in India policy

Bidder shall provide required self-declaration as detailed in Form 1.2 – Eligibility Declarations:

17) Self-declaration of their local content (and required certificate, in case of procurements above Rs 10 Crores) and their status as Class-I/ Class-II/ Non-local Supplier and their eligibility to participate as per this clause.
18) If the Tender Document indicates countries identified as not allowing Indian companies to participate in their Government procurement, then a declaration that they are not an 'Entity' of such countries (as per criteria of the FDI Policy of DPIIT as amended from time to time) and are therefore eligible to participate in this tender.
19) If a Bidder is claiming exemption (as obtained from relevant authorities) from meeting the stipulated local content on account of manufacturing the product in India under a license from a foreign manufacturer with the precise phasing of increase in local content, he must provide proof thereof.

1.2. Support/ Preferential Treatment to Micro & Small Enterprises (MSEs)

Policies of the Government to support Micro and Small Industries (MSEs, registered as per the following sub-clause) in comparison to non-MSE enterprises shall apply to this procurement.

1.2.1 Registration of MSEs

1) MSEs interested in availing such benefits must enclose in Form 1.2 with their offer the Udhyam Registration Certificate with the Udhyam Registration Number as proof of their being MSE registered on the Udhyam Registration Portal. The certificate shall be of latest but before the deadline for the bid submission.
2) MSEs shall be treated as owned by SC/ ST or women entrepreneurs:

   (d) The proprietor(s) shall be SC/ ST or women In proprietary MSEs
   (e) At least 51% shares shall be held by the SC/ ST or women partners in a partnership MSEs.
   (f) At least a 51% share shall be held by SC/ ST or women promoters in Private Limited Companies MSEs.

1.2.2 Support to MSEs

1) Tender sets shall be provided free of cost to MSEs, however agency has to sign and stamp the complete document for submission.

1.2.3 Purchase Preference to MSEs

The Procuring Entity reserves its option to give purchase preference to MSEs compared to the non-MSE enterprises as per policies of the Government from time to time. This preference shall only apply to products

produced and services rendered by Micro and Small Enterprises. If an MSE bidder quotes a price within the band of the lowest (L-1) +15 percent in a situation where the L-1 price is quoted by someone other than an MSE, the MSE bidders are eligible for being awarded up to 25 percent of the total quantity being procured if they agree to match the L-1 price and if the tender is divisible by nature. In case of more than one such eligible MSE, this 25 percent quantity shall be distributed proportionately among these bidders.

Support to Start-up Enterprises

1.2.4 Definition of Start-up Enterprises

1) As defined by DPIIT, an entity shall be considered as a 'Start-up':
    a) Upto a period of ten years from the date of incorporation/ registration, if it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India, and
    b) Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded one hundred crore rupees, and
    c) The entity works towards innovation, development or improvement of products or processes or services or a scalable business model with a high potential for employment generation or wealth creation.
2) Provided that an entity formed by splitting up or reconstructing an existing business shall not be considered a ‘Start-up’.
3) A Start-up so identified under the above definition shall be required to obtain and submit along with his bid a certificate of an eligible Start-up from the inter-Ministerial Board of Certification to obtain support.

1.2.5 Support to Start-ups

The Government of India has ordered the following support to Start-ups (as defined by the Department of Promotion of Industrial and Internal Trade - DPIIT).

20) **Relaxation in Prior Turnover and Experience:** The Procuring Entity reserves its right to relax the condition of prior turnover and prior experience for start-up enterprises subject to meeting of quality & technical specifications. The decision of the Procuring Entity in this regard shall be final. The decision of the Procuring Entity in this regard shall be final. Bidders to note that relaxation does not mean complete exemption from requirement. The tender inviting authority will evaluate the tender and its decision is final for extent of relaxation to be provided.

NIT DETAILS:-

1	**NIT No :**	TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024
2	**Name of the Work :**	SITC of central surveillance system at ACTREC campus
3	**Estimated cost put to tender:**	Rs.3,70,96,704/- (Excluding GST)
4	**EMD:**	2% OF Tender amount i.e.Rs. 7,41,934.00 to be submitted in the form of Fixed deposit /DD issued by Scheduled Bank in Favour of Account officer , TMC-ACTREC, payable at Navi Mumbai. Howerver the bidders may submit EMD as per detailed clause of EMD given on Pg. No. 32
5	**Completion period:**	4 Months
6	**Fee of Tender Document:**	Nil
7	**Tender Processing Fee:**	Nil
8	**Security Deposit:**	2.5% of tendered value. Will be released after DLP period of 5 years.
9	**Performance Guarantee:**	5%of tendered value
10	**Date of Publish:**	27.05.2024(06:00 PM) website on CPPP site https://eprocure.gov.in/eprocure/app Detailed NIT is also available on website https://www.actrec.gov.in/home for view only.
11	**Document Download/Sale Start Date**:	From 27.05.2024(06:00 PM)
12	**Document Download/ Sale End Date:**	To 18.06.2024(03:00 PM)
13	**Seek clarification start date:**	From 27.05.2024(06:00 PM) website on CPPP site https://eprocure.gov.in/eprocure/app or queries may be sent to tender.engg@actrec.gov.in, vkhair@actrec.gov.in hkelkar@actrec.gov.in, ksuthar@actrec.gov.in
14	**Seek clarification end date:**	Up to 30.05.2024(03:00 PM)
15	**Pre-bid meeting:**	At 03.06.2024 (11.00 AM)

16	**Post bid clarification end date:**	Upto 06.06.2024(03.00 PM)
17	**Bid submission start date:**	From 27.05.2024(06:00 PM)
18	**Bid submission end date:**	Up to 18.06.2024(03:00 PM)
19	**Bid submission Hard Copy end date:**	Up to 18.06.2024(03:00 PM)
20	**Date and time of online opening of Technical Bid:**	19.06.2024(03:00 PM) in the "Office of Engineering services, Second Floor,Khanolkar Shodhika , ACTREC Kharghar Node, Navi Mumbai - 410210
21	**Date of opening of Financial Bids of qualified bidders:**	Will be notified at a later date
22	**Note**: Department reserves the right to accept or reject the tender(s) in full or in part, without assigning any reason thereof. Tenders with any condition including conditional rebate shall be rejected forthwith.	

TENDER REQUIREMENTS FOR ELIGIBILITY: -

1.0 INITIAL CRITERIA FOR ELIGIBILITY FOR PRE-QUALIFICATION:

The applicant who fulfils the following criteria shall be considered for participation. Joint Ventures and Consortium etc. shall not be accepted.

Proof of registration with in India of firm in appropriate class/MSME/SHOP Act/CPWD and having experience in execution of similar nature of works.

1.1 The applicant should have satisfactorily completed the works as mentioned below during the last **seven years ending previous day of last date of submission of tenders.**

(ii) Three similar works each costing not less than Rs. 1,48,38,682/- i.e. 40 % of cost of tender.

OR

(iii) Two similar works each costing not less than Rs. 2,22,58,022/- i. e. 60 % of cost of tender.

OR

(iv) One work similar costing not less than Rs. 2,96,77,363/- i.e. 80 % of cost of tender.

Important Notes:

System Integration for CCTV Surveillance Systems and have successfully executed the Work order(s) for the same or similar item(s) during last 7-years ending 30/04/2024 having minimum order value as under along with copy of satisfactory performance certificate / repeat order from the same organization:

1. Similar work shall mean: **Agency should have carried out the work of Design , SITC of CCTV surveillance system IP based , Server based including associated active and passive works.** Cost of work shall mean gross value of the completed work including the cost of materials supplied by the Client, but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent.

2. The value of executed works shall be brought to the current costing levelby enhancing the actual value of work at a simple rate of 7% per annum; calculated from the date of completion to the last date of submission oftender.

a. The applicant should have had **Average Annual financial turn over (gross) of Rs. 3,70,96,704/-** on construction works during immediate last three consecutive financial years ending 31st March 2023. This should be duly audited by a Chartered Accountant. Year in which no turnover is shown would also be considered for working

out the average.

b. The applicant should not have incurred any loss in more than two years during the last five consecutive immediate financial years ending 31st March 2023 duly certified by the licensed Chartered Accountant.

Bidding calculation (To be submitted on letter head of bidder)

c. The bidding capacity of the contractor should be equal to or more than the cost of the work. The bidding capacity shall be worked out by the following formula:

Bidding Capacity = A x N x 2 – B

Where,

A= Maximum turn over in construction works executed in any one year during the last five years taking into account the completed as well as works in progress.The value of executed works shall be brought to current costing level by enhancing the actual value of works at a simple **rate of 7% per annum.**

N= Number of years prescribed for completion of work. 04 Months / 12 Months N = 0.33
B = Value of existing commitments and ongoing works to be completed during theperiod of completion of work for which tender has been invited.

3. Subject to provisions in the Tender Document, participation in this Tender Process is open to all bidders who fulfil the 'Eligibility' and 'Qualification criteria. Bidder should meet the following eligibility criteria as of the date of his bid submission and should continue to meet these till the award of the contract.. Bidder unless otherwise stipulated in TIS/ AITB must be:

   a natural person, private entity, public entity (State-owned enterprise or institution),

   unless permitted explicitly in TIS/ AITB, not be (or proposes to be, a Joint Venture/ Consortium (an association of several persons, firms, or companies - hereinafter referred to as JV/C).

   a provider of the Non-consultancy Services offered with valid registration regarding GSTIN, PAN, EPF, ESI, Labour, Private Security Agencies, as applicable to the subject Services.

   Must not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of aforesaid reasons.(Including their affiliates or subsidiaries or Contractors/ subcontractors for any part of the contract):

Not stand declared ineligible/ blacklisted/ banned/ debarred by the Procuring Organisation or its Ministry/ Department from participation in its Tender Processes; and/ or

Not be convicted (within three years preceding the last date of bid submission) or stand declared ineligible/ suspended/ blacklisted/ banned/ debarred by appropriate agencies of Government of India from participation in Tender Processes of all of its entities, for:

offences involving moral turpitude in business dealings under the Prevention of Corruption Act, 1988 or any other law; and/or

offences under the Indian Penal Code or any other law for causing any loss of life/ limbs/ property or endangering Public Health during the execution of a public procurement contract and/ or

suspected to be or of doubtful loyalty to the Country or a National Security risk as determined by appropriate agencies of the Government of India.

Not have changed its name or created a new "Allied Firm", consequent to having declared ineligible/ suspended/ blacklisted/ banned/ debarred as above.

Not have an association (as a bidder/ partner/ director/ employee in any capacity)

of any retired Manager (of Gazetted Rank) or any retired Gazetted Officer of the Central or State Government or its Public Sector Undertakings if such a retired person has not completed the cooling-off period of one year after his retirement. However, this shall not apply if such managers/ officers have obtained a waiver of the cooling-off period from their erstwhile organisation.

of the near relations of executives of Procuring Entity involved in this Tender Process

Not have a conflict of interest, which substantially affects fair competition. The prices quoted should be competitive and without adopting any unfair/ unethical/ anti-competitive means. No attempt should be made to induce any other bidder to submit or not to submit an offer for restricting competition

4. must fulfil any other additional eligibility condition, if any, as may be prescribed, in Tender Document.

5. must provide such evidence of their continued eligibility to the Procuring Entity if so requested.

6. of Class-II Local Suppliers and Non-Local Suppliers (as defined in Make-in-India policy) shall be eligible subject to certain conditions as detailed in the tender.

7. from specified countries having land borders with India (but not in development partnership with India) shall be eligible subject to certain conditions as detailed in the tender.

8. The applicant should have valid **Solvency of more than Rs. 1,48,38,682/-**

9. The applicant should own construction equipment as per list required for the proper and timely execution of the work. Else, he should certify that he would be able to manage the equipment by hiring etc. and submit the list of firms from whom he proposes to hire.

10. The applicant's performance for each work completed in the last seven years should be certified by an officer not below the rank of Executive Engineer or equivalent.

11. The applicant should have sufficient number of Technical and Administrative employees for the proper execution of the contract. The applicant should submit list of well qualified and experienced Engineers and Supervisors stating clearly how those would be deployed for execution of works.

12. List of works in hand & List of similar works carried out by them for last 7 years indicating; i) Agency for whom executed, ii) Value of work, iii) Completion time as stipulated and actual, or present position of the work.

13. List of construction plant, machinery, equipment's, accessories & infrastructure facilities possessed by the agency to complete the work in time.

14. List of technical staff they possess and proposed to deploy for the work.

15. Certificates: (Scanned copy of original certificates to be uploaded)

16. Registration certificate, if any

17. Certificates of Work Experience / Performance Certificates

18. GST (Goods and Services Tax) Registration Certificate

19. ITR Last 5 years

20. Profit & Loss Last 5 Years

21. Turnover Certificate Last 3 year

22. PAN (Permanent Account Number) Registration

23. EPFO registration certificate

24. ESIC registration certificate

25. UNDERTAKING as under: -

(i) I/We undertake and confirm that the contracted works shall not be got executed through sub- contractor on back to back basis. Further that, if such a violation comes to the notice of Director-ACTREC, I/we shall be liable to be debarred & black listed as the case may be for bidding in future. Also if such violation comes to the notice of department before date of start of work, the Engineer in-charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

(ii) I / We have read and examined the E-Tender Notice for Inviting Pre-Qualification (PQ) of Contracting Agencies, Section I, II & III, & other documents and rules referred to and all other contents in the tender documents for the work AND ACCORDINGLY.I / We, hereby submit credentials and other documents as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

(iii) I/We have downloaded and gone through the pre-bid clarifications issued by the Department after close of sale of tenders and submitting tender accordingly.

1. **Make in India Status:**

Having read and understood the Public Procurement (Preference to Make in India PPP - MII) Order, 2017 (as amended and revised till date) and related notifications from the relevant Nodal Ministry/ Department, and solemnly declare the following:

a) Self-Certification for the category of suppliers:

(Provide a certificate from statutory auditors/ cost accountant in case of Tenders above Rs 10 Crore for Class-I or Class-II Local Suppliers OR for below 10 Cr. Self declaration certificate.). Details of local content and location(s) at which value addition is made are as follows:

Local Content and %age

Location(s) of value addition

Therefore, we certify that we qualify for the following category of the supplier (tick the appropriate category):

☐ Class-I Local Supplier/

☐ Class-II Local Supplier/

☐ Non-Local Supplier.

b) We also declare that.

☐ There is no country whose bidders have been notified as ineligible on a reciprocal basis under this order for the offered Services, or

☐ We do not belong to any Country whose bidders are notified as ineligible on a reciprocal basis under this order for the offered Services.

2. The intending bidder must read the terms and conditions as per "SECTION – 1: NOTICE INVITING TENDERS" OF **"CONDITIONS AND CLAUSES OF CONTRACT – 2008"** carefully. **He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.**

Department reserves the right of Non-consideration of Tender documents of the agencies who are not fulfilling the NIT stipulations and / or having adverse report on the works carried out by them in the past.

3. Information and Instructions for tenderers posted on website shall form part of tender document.

4. The tender document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **CPPP site https://eprocure.gov.in/eprocure/app** free of cost**.**

OBTAINING OF STANDARD DOCUMENTS: In addition to the above, the prospective agencies shall be required to possess following documents with them

separately, which shall form part of Tender Documents for this work. These documents can be downloaded from the ACTREC/TMC's website www.ACTREC/TMC.gov.in or Printed books are available at the Engineering Services, TMC-ACTREC, Kharghar, Navi Mumbai– 400 210. In case the agencies already possess these standard documents with them, the same need not be downloaded/ purchased again.

5. The bid can only be submitted after uploading the mandatory scanned documents such as **"Bid security Declaration"** form duly signed in the prescribed format, in lieu of 'EMD'.

6. On opening date, the contractor can login and see the bid opening process.

7. Certificate of Financial Turn Over: At the time of submission of bid, contractor may upload **Undertaking** / Certificate from CA mentioning Financial Turnover of last 3 years or for the period as specified in the bid document.

8. PRICE BID : Schedule of price bid would appear in the form of BOQ XXXX .xls

The Financial Proposal/Commercial bid / BoQ format is provided as BoQ_XXXX.xls along with this tender document at https://eprocure.gov.in/eprocure/app . Bidders are advised to download this BoQ_XXXX.xls as it is and quote their offer/rates in the permitted column and upload the same in the commercial bid. **Bidder shall not tamper/modify downloaded price bid template in any manner**. In case if the same is found to be tempered/modified in any manner, tender will be completely rejected and tenderer is liable to be banned from doing business.

Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in **SKY BLUE** colour. While selecting any of the cells a warning appears **to mandatorily fill all such cells with any value, including "0" (ZERO).**

9. In the case of bids in two / three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted, then the bid submitted earlier shall become invalid.

10. The Department reserves the right to accept / reject any prospective application without assigning any reason thereof.

11. Short listing of the agencies shall be subject to thorough verification of their credentials and inspection of works carried out by them, through a Technical Evaluation Committee of experts, constituted by ACTREC/TMC. The performance report from the executing authority shall also be considered for short listing.

12. If the information furnished by the applicant is found to be incorrect at a later stage, they shall be liable to be debarred from tendering / taking up worksin ACTREC/TMC.

Note: Prospective agencies shall satisfy themselves of fulfilling all the NIT criteria before submission of tender. Department reserves the right of non- consideration of tender of the agencies not fulfilling the stipulated criteria.

13. Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

1. Made misleading or false representation in the forms, statements and attachments submitted in proof of the qualification requirements; and/or

2. Record for poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, or financial failures etc.

3. Quantum of work completed is not related to similar work criteria.

LIST OF DOCUMENTS TO BE SCANNED, UPLOADED and for HARD copy Submission:

1	**EMD as per prescribed Format**
2	**Financial Turn Over certified by CA Last 5 year**
3	**ITR return of last 5 years**
4	*Balance sheet & Profit & Loss statement certified by CA of last 5 years*
5	**Latest Bank Solvency Certificate (Not older than last 1year from date of Publish of tender.)**
6	**Form A & B – Financial Information & Solvency**
7	**Form C – List of similar work**
8	**Form D – List of work under execution/ awarded**
9	**Form E – Performance report of work**
10	**Form F – Structure and Organization**
11	**Form G – Details of Technical Person**
12	**Form H – Details of Plants & Machinery**
13	Certificates of Work Experience / Performance Certificates
14	GST (Goods and Services Tax) Registration Certificate
15	PAN (Permanent Account Number) Registration
16	EPFO and ESIC registration certificate. If applicable
17	Contractor's Registration certificate (MSME, CPWD, MES etc.)
18	OEM Authorization certificate.
19	Technical Details of proposed product.
20	*Undertaking that the eligible similar work(s) have not been executed through another Contractor on back to back basis.*
21	Undertaking for having gone through the documents as per Technical Bid. (Format Provided in excel sheet of Forms)
22	Undertaking for downloaded the Pre-bid clarifications issued by the Department afterclose of

sale of tenders as indicated in the Technical Bid. (Format Provided in excel sheet of Forms)

23 *Compliance form 1*

24 *Compliance from 2*

25 *NEFT form*

26 Acceptance Letter

27 *Bid Capacity on Letter head*

28 Tender Document (Signed and stamp on each page)

29 *Condition of Contract (Signed and stamp on each page Available on ACTREC website - https://actrec.gov.in/sites/default/files/TATA-Conditions-of-contract.pdf)*

30 Declaration for Make in India (Provided on P. No. 11-12)

31 Signed declaration on letterhead from offered OEM for CCTV Camera and NVMS that offered camera models & NVMS software are integratable, ONVIF Profile S, Profile G compliant or better and support the configurations of the system. NVMS must have capability of being scalable (For Viewing and recording). An undertaking by the Bidder in this regard must be submitted.

32 The bidder should submit "No Malicious Code Certificate" from offered OEM for CCTV Camera and Network Video Management Software (NVMS).

33 Agency to submit country of Origin certificate for Camera, VMS , Servers ,

34 Manufacturer Authorization Certificate (MAF) from OEM's

35 Data Sheets for offered Solution.

36 Undertaking from Offered OEM's having its service and support center in India

37 Undertaking by the Bidder that offered camera models & NVMS are integratable, ONVIF Profile S, Profile G compliant and support the configurations of the system. NVMS must have capability of being scalable.

38 Undertaking by the Bidder that offered items in the bid are not obsolete/End of Life in the market and are not declared End of Support by the OEM

39 Compliance to the technical specification that there is no deviation from the specification and also attached the filled Technical Specification compliance column (Yes/No)

Note.

1. **If any additional documents required during evaluation for clarification same will be asked from bidders during Technical evaluation**
2. **Bidder must submit all the documents in hard copy with spiral bid and numbering on each page with Index on front page**
3. **All the above documents are mandatory if bidders failed to submit any document he will be disqualified from the bidding process**

TATA MEMORIAL CENTRE
Advanced Centre For Treatment, Research And Education In Cancer.
(ACTREC)
Kharghar Node, Navi Mumbai – 410210

DOCUMENTS ISSUED TO M/S. …….. ……

……

SECTION - 2 : ITEM RATE TENDER & CONTRACT FOR WORKS		
i)	Name of work	SITC of central surveillance system at ACTREC campus
ii)	Last date & time of online submission of tender	On 18.06.2024(03:00 PM)
iii)	Date & Time of online opening of tender (Technical Bid)	On 19.06.2024(03:00 PM)
iv)	Venue for pre-bid clarification	ACTREC KHARGHAR

Date of issue: **……**

TENDER

I / We have read and examined the Notice Inviting Tender, Salient Governing Features of the Tender / Work including Schedules A, B, C, D, E & F, Specifications Books *, Drawings and Designs, General Rules & Directions, General Clauses of Contract, Special Clauses of Contract & other documents and rules referred to in the Conditions and Clauses of Contract – 2008 * and all other contents in the tender documents for the work.

(* Note: The "Specifications / Conditions and Clauses of Contract books" are available on Web-site www.ACTREC/TMC.gov.in.)

The required books as indicated under Schedule "F" and under Clause-11 of this Salient Governing Feature of the Tender / Work, may be downloaded from the above Web-site also Printed books are available at the Engineering Services, TMC-ACTREC, Kharghar, Navi Mumbai– 400 210.

However, these books, as required / specified in this "Salient Governing Feature of the Tender / Work" herein below, shall remain part of the tender documents / Contract / agreement to be executed, and signed by both the parties after acceptance of the Tender.)

I / We, hereby tender for the execution of the work specified for the President of India within the time specified in Schedule "F", viz., Schedule of Quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule 1 of General Rules & Directions and in Clause - 11 of the General Clauses of Contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender open for (150) One Hundred and Fifty days from the date of opening of technical bids and not to make any modifications in its terms and conditions.

Original scanned copy of Bid Security Declaration form is uploaded on the indicated website along with other tender documents. We agree that our firm shall be suspended for the period of one year in case we withdraw or modify our bids during the validity.

I / We have downloaded and gone through the pre-bid clarifications issued by the Department after close of sale of tenders and submitting tender accordingly.

Consequent to the award of the subject work, If I / we, fail to furnish the prescribed performance guarantee within prescribed period, I / we agree that the said President of India or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I / we fail to commence work as specified, I / we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the performance guarantee absolutely, otherwise the said shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, upto maximum of the percentage mentioned in Schedule “F” and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I / We agree that in case of forfeiture of Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

“I / We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in ACTREC/TMC in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Performance Guarantee.”

I / We hereby declare that I / We shall treat the tender documents, drawings and other records connected with the work as secret / confidential documents and shall not communicate information derived there-from to any person other than a person to whom I / We am / are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

I / We certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, if such violation comes to the notice of Department, then we shall be debarred for bidding in ACTREC/TMC in future forever. Also if, such violation comes to the notice of the Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit / Performance Guarantee etc.

Dated *Signature of Contractor*

Witness

Address

Occupation

Salient Governing Features of the Tender

Proforma of Schedules

SCHEDULE 'A' :	Reference to NIT & Tender Documents		
SN	**TITLE**	SITC of central surveillance system at ACTREC campus	
1	Notice Inviting Tender (NIT) No.	TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024	
2	Notice Inviting Tender details	i) NIT as uploaded on Website	
		ii) NIT as published in News papers	
3	**Changes in conditions of contract - 2008**	**CDN / C 1 , CDN/C2, CDN/C3& CDN/C4**	
4	**Changes, if any, in following specifications:**		
	a) Specifications for Civil Works – 2015 :	Enclosed	
	b) Specifications for PHE Works – 2008 :	NA	
	c) Addl. Specifications for PH works	NA	
5	Scope and location of the work:	Enclosed	
6	List of drawings	Nil	
7	Time Schedule for the work:	Nil	
8	**Schedule of Quantities**	**Please refer Financial Bid**	

SCHEDULE 'B' :		Materials to be issued to the contractor :-		
S. No	**Description of item**	**Quantity**	**Rates at which the Materials will be charged to the contractor**	**Place of issue**
1	2	3	4	5
1.	Water for construction Purpose	--	***In contractor's Scope***	--
2.	Electricity for construction purpose	--	***In contractor's Scope***	--
3.	Cement in Bags	NIL	NA	

SCHEDULE 'C' :	Land earmarked for temp. infrastructures and Tools & plant to be hired tothe contractor		
S.No	**Description**	**Hire charges**	**Place of issue**
1	2	3	4
1.	Area for storage / site office (SCC-11)	NA	

2.	Temporary Buildings (SCC-12)	NA
3.	Labour hutments (SCC-12)	Temporary shed will be permitted at the - discretion of Director ACTREC . However cost of erecting such shed shall be entirely in contractor's scope and overheads. No extra payment shall be made. Also, If place not provided for erecting shed in ACTREC Campus then contractor has to make his own arrangements for labour accommodation out side the campus. Nonavaibliity of space in campus or out side shall not be treated as hindrance in the project and will not be accepted as reasons to provide extension of completion time.

SCHEDULE 'D' :	
Extra schedule for specific requirements / documents for the work, if any **Particularly for addl. Security guidelines, Gate pass, lift, tower crane etc.**	***As per NIT / SOQ***

SCHEDULE 'E' :	Reference to the Book of "TMC Conditions & Clauses of Contract" to be followed for this work	**Year – 2008**
Name of works:- Supply of Air conditioning Spare parts on rate contract for the year 2023-2024 at ACTREC		**As per NIT**
Estimated cost of work :	**Rs. 3,70,96,704**	**As per Tender**
i) Performance Guarantee	**5% of tendered value**	**As per Tender**
ii) Security Deposit	**2.5% of tendered value**	**As per Tender**

SCHEDULE 'F' :	
General Rules & Directions :	
Officer inviting tender :	***Director, ACTREC***
Maximum percentage for quantity of Items of work to be executed beyondwhich rates are to be determined in accordance with Clauses 12.2 & 12.3.	As applicable

Definitions :*(CCC – 2008, P. 11)*		
2(v)	Engineer-in-charge	***As nominated by OIC-ES***
2(viii)	Accepting Authority	***Director, TMC***
2(x)	Percentage on cost of materials and labourto cover all overheads & profits	***15% (Fifteen percent)***
2(xii)	Department	***Engineering Services ACTREC/TMC***
9(ii)	Standard Contract Form of Dept.	***Item Rate Tender***

Clause – 1(CCC – 2008, P. 13)	
i) Time allowed for submission of PerformanceGuarantee from the date of issue of **Letter of Intent (LOI)** / acceptance / WO.	***15 days***

ii) Maximum allowable extension beyond the period (provided in –i) above with late fee @ 0.1% per day, of performance guarantee amount.	***15 days***

Clause – 2(CCC-2008, P. 14)	Authority for fixing compensationunder clause 2.	***Director, ACTREC***

Clause – 5(CCC – 2008, P. 15)	Number of days from the date of issue of letter ofacceptance / WO for reckoning date of start.	***15 days***

Mile stone(s) as per table given below:

TABLE OF MILE STONE(S)

Sl. No.	Description of Milestone (Physical)	Time Allowed in days (from date of start)	Amount to be with-held in case of non-achievement of milestone
1.	NIL		

TIME ALLOWED FOR EXECUTION OF WORK	***12 Months***

Authority to decide: i) Extension of time: **Engineer-in-Charge for the work.**
ii) Re-scheduling of Mile Stone NA.

Clause applicable – (6or 6A):***(CCC – 2008, P. 16)***	Clause 6 for Manual Billing or Clause 6A for Computerized Billing	***Clause 6 A*** :

Clause – 7: Payment terms ***(CCC-2008, P. 17)***	a) 60% on supply b) 20% on installation c) 20% on final commissioning. d) Payment will be done as per actual measurement.

Clause – 10A: (CCC – 2008, P. 19)		**List of testing equipment's to be provided by the contractor at sitelab**
NA	NA	NA

Clause – 10B (ii) : ***(CCC – 2008, P. 20)***	**(Mobilization Advance)**
Whether Clause 10 B (ii) shall be applicable**(If yes, Clauseof Tender Condition to be followed)**	**Not Applicable.**

Clause – 10C:	Component of labour expressed as percent of value ofthe work ***(CCC – 2008, P. 21)***	***NA***

Clause – 10CA:***(CCC – 2008, P. 21)*** *Not Applicable*

S. No	Materials Covered underthis Clause	Nearest Materials for which All India Wholesale Price Index is to be followed	**Basic Rate**

1	**NA**	***NA***	-

***Note:** Base price for materials given above are only for regulating operation of clause 10-CA.The tenderers are requested to consider prevailing market rates while quoting the rates.

Clause – 10CC:(CCC – 2008, P. 22) : Not Applicable			
Clause 10 CC to be applicable in contracts with stipulated period ofcompletion exceeding the period shown in next column.			
Schedule of component of Cement, Steel, other Materials, Labour, POL etc. for price escalation.			
1	NA	NA	-

Clause – 11:(*CCC – 2008, P. 24)*	
Specifications to be followed for execution ofthis work	***As per BOQ and technical Specification***

Clause – 12:(CCC – *2008, P. 25)*		
12.2 & 12.3	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building works	30%
12.5	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work	100%
12.5	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for maintenance work	50%
Clause – 16:(CCC – 2008, P.27)	Competent Authority for deciding reducedrates :	***Director, ACTREC***

Clause – 36(i): (CCC-2008,P.35)	**Requirement of Technical Representative(s) & recovery Rate**					
Sl. No.	Minimum Qualification ofTechnical Representative	Discipline	Designation (Principal Technical / Technical representative)	Min. Exp. In yrs.	No.	Rate at which recovery shallbe made from the contractorin the event of not fulfilling provision of clause 36(i).
1	BE/BTech Engineer	Electrical Engineering	Principal Technical Representative at site	5	1	Rs. 30,000/- per month
2	BE/BTech or Diploma Engineer	Electrical Engineering	Site Supervisor/Engineer	3	1	Rs. 20,000/- per month

Clause – 42:(CCC – 2008, P. 36)		
(i)	(a) Schedule / statement for determining theoretical quantity of cement on the basis of :	**--**
(ii)	**Variations permissible on theoretical quantities.**	
A	**Cement**	
	i) for works with estimated cost put to tender up to ***Rs.*** **4,12,18,560**	***NA***
	ii) for works with estimated cost put to tender more than ***Rs.*** **4,12,18,560**	***NA***

B	Bitumen for All works	***Nil on minus side***
C	Steel reinforcement and structural steel sections	***NA***
D	All other materials.	**NA**

RECOVERY RATES			
S. No.	**Description of Item**	**Rates in figures & words at which recovery shall be madefrom the Contractor**	
		Excess wastage beyond permissible limit	Less use Beyond permissible Limit
1	Cement	**NA**	**450Rs / 50Kg Bag**
2	Structural and Reinforcement Steel	**NA**	**RS 150000/Tonne**
3	Structural Sections	**NA**	**NA**
4	Bitumen		**Rs 110000/Tonne**

N**otes-**

1. In the case of any discrepancy between these "Salient Governing Features of the Tender/Work" & the book "**Conditions and Clauses of Contract – 2008**", stipulations given in these "Salient Governing Features of the Tender/Work" shall take precedence.

The documents forming the contract are to be taken as mutually explanatory of one another. In the event of any discrepancy between the details and/or description of item/activity to be executed as per scope of work, the drawings and the technical specifications, then for the purpose of interpretation, the priority of document shall be in accordance with the following sequence –

1. Contract Agreement
2. Accepted Work Order
3. Accepted Letter of Intent (LOI)
4. Pre bid clarification
5. Other Special Conditions
6. Special Conditions of Contract
7. General Conditions of Contract
8. Conditions of Contract 2008 Booklet
9. Financial bid
10. Working Drawings if any
11. Relevant I.S Codes
12. Any other document forming part of the Contract;

Any further interpretation of above clause shall be at the discretion of the Engineer, whose decision shall be final and binding on the parties to the contract. For clarification Serial No. 1 as mentioned above will have higher precedence and shall supersede the relevant conditions or in case of discrepancy or ambiguity.

2. In the case of any discrepancy found in printed matter of Hard copy and Soft copy of any document of the tender including Technical & Financial bids, (either downloaded from the departmental web-site or provided by the department through e-mail or any other mean), the matter of soft copy shall always Govern/ prevail.

3. It will be the responsibility of the Contractor to get the character & antecedents of the regular staff & Supervisors, engaged by them, for carrying out the work being awarded to him, verified from the Police authorities and produce the report of the verification to the Security at the gate under intimation to Engineer-in-Charge of the work.

SPECIAL CONDITIONS OF CONTRACT

1	**LIQUIDATED DAMAGE**
a)	Successful tenderer will have to commence/execute the work as per the order placed by email/soft copy/LOI/Work order within the stipulated time period mentioned in the order. In failure to do so, the performance security submitted by the firm will be forfeited. In the event of the contractor fail to comply with conditions of this contract, he shall be liable to pay a **compensation for non-commitment of work as per order or for the delay an amount equal to 1.0% per month delay to be computed on per day basis, provided that the entire amount of compensation to be paid shall not exceed 10% of the estimated cost of the work**. If the work is not completed within the stipulated time period as mentioned in the work order or inferior nature of work, the engineer in-charge has the right to terminate the whole work or part and get the work done from other agency at the risk and cost of tenderer and access money will be recovered from any dues. Liquidated damage can be recovered from EMD, Performance Security, Security Deposit or running bills of the Tenderer or any other mode for deduction of security deposite as approved by competent authority of TMC. Extension in delivery of work will not be given except in exceptional circumstances. The defaulting tenderer will be debarred from participant of any tender of ACTREC.
2	**ARBITRATION**
a)	In the event of any dispute arising between ACTREC and the contractor in any matter covered by this contract or arising directly or indirectly there from or connected or concerned with the said contract in any manner of the implementation of any terms and conditions of the said contract, the matter shall be referred to the Director, ACTREC who may himself act as sole arbitrator or may name as sole arbitrator an officer of ACTREC/TMH notwithstanding the fact that such officer has been directly or indirectly associated with this contract and the provisions of the Indian Arbitration Conciliation Act, 1996 shall apply to such arbitration. The contractor expressly agrees that the arbitration proceedings shall be held at MUMBAI/NAVI MUMBAI.
3	**DIRECTOR-ACTREC/THE TENDER COMMITTEE / TENDERING AUTHORITY / UNDERSIGNED RESERVE THE RIGHT:**
a)	To reject any / or all the Tenders at any stage without assigning any reason there of and not accept the lowest Tenders.
b)	To procure any item of the tender directly from State / Central govt. Undertaking at government rate even if a tender of other parties for the same item has been offered / accepted / approved.

c)	To reject abnormally low price of an item quoted by the tenderer in the Tender with some malafide intention.
d)	Officer authorized on behalf of the Director-TMC does not bind himself/herself to accept the lowest or any other offer & reserve the right to cancel, reduce or split the contract on more than one source without assigning any reason for such action.
e)	DIRECTOR-TMC reserves right to accept the tender in full or part without assigning any reason.
4	**RISK PURCHASE**
a)	In the event of failure to execute the contract to the satisfaction of the engineer in-charge he has the reserves the right:
b)	To reject any part of the contract executed and withhold payment for such portion of the contract till such time the defects are rectified to the satisfaction of the Engineer In-charge.
c)	To terminate the contract by giving 2 weeks' notice in writing without assigning any reason and to get the contract executed by other agency at the risk and cost of the contractor.
5	**GENERAL LIEN**
a)	Whenever under this contract any sum of money is recoverable from and payable by the contractor, ACTREC shall be entitled to recover such sum by appropriating in part or in whole the security deposit of the contractor, if a security is taken from the contractor. In the event of the security being insufficient or if no security has been taken from the contractor, the balance or the sum recoverable, as may be shall be deducted from any sum duo to the contractor or which at any time thereafter may become due to the contractor under this or any other contract with the ACTREC. Should this sum be not sufficient to cover the full amount recoverable, the contractor shall pay to the ACTREC on demand the remaining balance due.
6	**RECTIFICATION OF WORK/REPLACEMENT OF DEFECTIVE SUPPLY**
a)	In any supply item or any part of work is found defective or fails to meet the requirements of the contract before it is accepted, the ACTREC shall give the contractor a notice setting forth details of such defects or failures and the contractor shall forthwith arrange to set right the defective work or replace the defective supply by the good one to make it comply with the requirements of the contract. This in any case shall be completed within a period not exceeding one month from the date of the initial report pointing out the defects. The replacement or rectification shall be made at site by the contractor at free of cost. Should the contractor fail to do the needful within this stipulated time frame, ACTREC reserves the right to reject the work/equipment in full or in part and get it replaced at the cost of the contractor. The cost of any such replacement made by the ACTREC shall be deducted from the amount payable to the contractor against this work order.
7	**TERMINATION FOR DEFAULT**
a)	ACTREC, may without prejudice to any other remedy for breach of contract, by written notice of default, sent to the contractor, for termination of this contract in whole or in part;

b)	If the bidder fails to deliver any or all the work within the time period (s) specified in the contract, or any extension thereof granted by ACTREC.
c)	If the bidder fails to perform any other obligation(s) under the contract.
d)	If the bidder in either of the above circumstances, does not remedy his failure within a period of 15 days (or such longer period as ACTREC may authorize in writing) after receipt of the default notice from ACTREC on a notice period of 30 days.
e)	In the event of ACTREC terminate the contract in whole or in part pursuant to above para the ACTREC may execute the work upon such term and in such manner as it deems appropriate work similar to those undelivered and bidder shall be liable to ACTREC for any excess cost for such similar work. However, the bidder shall continue the performance of the contract to the extent not terminated.
8	**ADDITIONAL OR EXTRA WORK**
a)	ACTREC reserve the right to place extra items other than schedule quantity for completion of given work order. In such cases the Engineer In-charge calculate the expenditure for supply and execution of such work by taking quotation from local agency and adding applicable levies, labor charges, incidental expenditure, profit etc. as per the normal procedure to arrive suitable rate. He may also obtain the expenditure of the extra item either from CPWD manual or from the work order executed for government organization for similar work in the recent past. If the quantity of work is exceeding more than 10%, Engineer-in-Charge should be informed the same and execution should be done only after prior approval.
b)	ACTREC also has the reserve to modify the quantity of items in work order to add/reduce/cancel as per the site requirements. Such additional quantity will be settled at the same rate and terms & conditions of the order on completion of work after taking final joint measurement.
c)	Bidder to inform in advance before executing additional/substitute quantity. Prior approval for the same should be obtained from ACTREC before execution.
9	**PAYMENT TERMS**
a)	60% on supply of material
b)	20% on installation of material at site
C)	20% on final commissioning and handing over of system including final as build documentation , warrantee certificate.
d)	Payment will be done as per actual measurement.
10	**FAIR WAGES**
	The bidder shall pay the monthly wages to the labours employed by him as per the minimum wages enforced by Labor Enforcement Authority of India on time to time in front of an ACTREC official, together with ESIC, Provident Fund, and Bonus etc. as applicable. The contractor will forward his bills for the work executed by him by attaching copies of salary slip signed by the worker for the current/previous month for early settlement of his bills.
	Other Special conditions (This conditions overrule other condition specified anywhere in contract as applicable)

1	The work to be carried out as per the instruction of Engineer-in charge.
2	Material delivery challans to be submitted along with running and final bills duly sign and stamp at ACTREC security Gate.
3	Deployed workers must have company Identity cards and should follow all safety as per the labour laws.
4	Material to be used of approved make with ISI mark as mentioned in schedule of rate and as per the instruction of Engineer-incharge.
5	Space for storage of material during execution of work will be provided if available in the ACTREC Premises to the contractor. But risk of theft/damage is the contractor's risk and TMH/ACTREC is not responsible for any theft/damage/fire.
6	**During execution of works, contractor has to take adequate care of ongoing patients care services.**
7	**No mobilization or secured advance will be paid to contractor.**
8	The Contractor should depute Supervisor/Engineer at site during execution of works on each and every day and night as per the instructions given by Engineer - in charge.
9	If the contractor fails to clear the debris from premises then fine of Rs 10,000/truck will be charged and recovered.
10	Agency to bring his manpower to execute the works irrespective of quantity of work allotted.
11	Engineer in charge may priorities one type of work over the other and the contractor has to abide as per the requirements.
12	Defect Liability period 60 month from the date of actual completion of work.
13	Security Deposit will be deducted @ 2.5% of work order value from the running bills and will be refunded after completion of defect liability period of one Year
14	Performance Guarantee will be release only after award of completion plus TWO month.
15	Escalation is not applicable since the time period is less than 18 months for execution. Quoted/Negotiated Prices will remain firm for entire contractual period.
16	Lump sum items given in the bill of quantities shall have a meaning that complete work given in item is to be executed on turnkey basis considering all the items required for execution. Guidance and instructions will be provided by the Engineer in-charge of the project. No extra payment will be made for such turnkey items except for the entire amount quoted in BOQ.
17	**Earnest Money deposit** **i)Rs. 7,41,934/- in the form of FDR/DD as prescribed above.** **or** **ii) a)50% of EMD Amount i.e, Rs. 3,70,967/- in the form Demand Draft/ Fixed Deposit Receipt as prescribed above and** **b) Balance amount 50% of EMD Amount i.e, of Rs . 3,70,967/- vin the form of Bank Guarantee (BG) issued by a Scheduled Bank drawn in favour of ' Accounts Officer, ACTREC** **Note: 1) Bank Guarantee should strictly in accordance with the prescribed format otherwise it shall not be accepted.**

	2) EMD in the form of cheque will not be accepted **The agency has to provide EMD in prescribed format before the last date of submission as stipulated in the tender. The bids of the agency shall be treated as unresponsive and will be summarily rejected if the EMD is not submitted as stipulated above**

I have read the Above instructions carefully and understood in right perspective and agreed.

Seal and Signature.

Date:

CDN/C-1:LIST OF CHANGES / MODIFICATION IN THE CCC – 2008

SN	Existing Provision	Modified Provision
1	**SECTION – 1: NOTICE INVITING TENDERS**	
1.2	Sl. No. 6, Page 6: **Performance Guarantee:** The tenderer, whose tender is accepted, will be required to furnish performance guarantee of 5% of the tendered amount within the period specified in Schedule "F". This guarantee shall be in the form of Department's cash receipt (in case guarantee amount is less than Rs.10,000/-) or Deposit at call receipt / Demand Draft / Pay Order / Banker's cheque issued by a Scheduled Bank (in case guarantee amount is less than Rs.1,00,000/-) or Government Securities / Fixed Deposit Receipt (FDR) or Guarantee Bonds of any Scheduled Bank or The State Bank of India in accordance withthe prescribed form.	Sl. No. 6, Page 6: **Performance Guarantee:** The tenderer, whose tender is accepted, will be required to furnish performance guarantee of 5%of the tendered amount within the period specified in Schedule "F". This guarantee shall be in the form of Department's cash receipt (in case guarantee amount is less than Rs.10,000/-) or Deposit at call receipt / Demand Draft / Pay Order / Banker's cheque issued by a Scheduled Bank (in case guarantee amount is less than Rs.1,00,000/-) or Government Securities / Fixed Deposit Receipt (FDR) or Guarantee Bonds of any Scheduled Bank or The State Bank of India in accordance with the prescribed form. **The earnest money deposited alongwith bid shall be returned after receiving the aforesaid performance Guarantee**
1.3	Sl. No. 9, Page 6: Validity of tender: The tender for the work shall remain open for acceptance for a period of 120 days from the last date of its submission.	Sl. No. 9, Page 6: Validity of tender: **The tender for the work shall remain open for acceptance for a period of 150 days from the date of opening of technical bids.**
2	**SECTION – 2: ITEM RATE TENDER & CONTRACT FOR WORKS**	
2.1	Para – 3 at page 7: We agree to keep the tender open for one	Para – 3 at page 7 : **We agree to keep the tender open for 150 days from the**

	hundred twenty (120) days from the last date of its submission and notto make any modification in its terms and conditions.	**date of opening of technical bids and not to make any modification in its terms and conditions.**
2.2	New para is added as second last para , Page 8	New para is added as second last para, Page 8:I / We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in **ACTREC/TMC** in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in- Charge shall be free to forfeit the entire amount of Performance Security.
3	**SECTION -3 : GENERAL RULES AND DIRECTION**	
	Para 12 (ii) The tenderer, whose tender is accepted,will also be required to furnish by way of security Deposit for fulfillment of the contract, an amount equal to 5% of the tendered value of the work.	Para 12 (ii) The tenderer, whose tender is accepted, will also be required to furnish by way of **Security Deposit** for fulfillment of the contract, an amount equal **to 2.5% of the tendered value** of the work.
4	**SECTION -4 : CONDITION OF CONTRACT**	
4.1	New para is added as (xv) , Page 11	New para is added Page 11 (xv) **Date of commencement of work –** The date of commencement of work shall be the date of start as specified in Schedule F or the 1st date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.
5	**SECTION – 5 (i): GENERAL CLAUSES OF CONTRACT (GCC)**	
5.1	Clause 1Page No. 13 (iv) In the event of the contract being determined under provisions of any of the clause/ condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Director TMC.	Clause 1Page No. 13 (iv) In the event of the contract being determined **or rescinded** under provisions of any of the clause/ condition of the agreement, the performance guarantee shall standforfeited in full and shall be absolutely at thedisposal of the Director TMC.

5.2	Clause 1Apara 1, Page No. 13 The person(s) whose tender may be accepted (herein after called the contractor) shall permit Government at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 5% of the gross amountof each running bill till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the tendered value of the work. Such deductions ……to make good the deficit	Clause 1Apara 1, Page No. 13 The person(s) whose tender may be accepted (herein after called the contractor) shall permit Government at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 5% ofthe gross amount of each running bill till thesum amount to **security deposit of 2.5%** of the tendered value of the work.
5.3	**Clause 1A** para 3, Page No.13 Security Deposit as deducted above can be released againstBank Guarantee issued by aScheduled Bank on its accumulation to a minimum of Rs.5 lakhs subject to the condition that amount of such Bank Guarantee, except last one, shall not be less than Rs.5 lakhs.	**Clause 1A** para 3, Page No. 13 Security Deposit it as deducted above can be released against Bank Guarantee issued by a Scheduled Bankon its accumulation to a minimum of Rs. 5 lakhs subject to the condition that amount of such Bank Guarantee, except last one, shall not be less than Rs. 5 lakhs. **Provided further that the validity of bank guarantee shall be in conformity with provisions contained in clause 17 which shall be extended from time to time depending upon extension of contract granted under provisions of clause 2 and clause 5.**
5.4	**Clause 3** Page No. 14 (xii) If the work is not started by the contractor within 1/8th of the stipulated time.	**Clause 3** Page No. 14 (xii) : Deleted
5.5	**Clause 10 C** Page No. 21	**Clause 10 C** Page No. 21
	Clause 10 C Page No. 21 PAYMENT ON ACCOUNT OF INCREASE IN PRICES/ WAGES DUE TO STATUTORYORDER (S) : If after submission of the tender ……of the value of work done during that period.	Deleted

5.6.1	**Clause 10 CA** para 3, Page No. 21 PAYMENT DUE TO VARIATION IN PRICES OF MATERIALS AFTER RECEIPT OF TENDER: The increase/ decrease in prices…… as indicated in schedule "F" shall be followed.	Deleted
5.6.2	**Clause 10 CA** Page No. 21Addition to the last para	Deleted
5.7	**Clause 10 CC** Page No. 22 PAYMENT DUE TO INCREASE/ DECREASE IN PRICES/ WAGES AFTER RECEIPT OF TENDER FOR WORKS:	Deleted
5.7.1	**Clause 10 CC** Page No. 22 (ii) (d) Full assessed value of Secured Advance fresh paid inthis quarter	Deleted
5.7.2	**Clause 10 CC** Page No. 22 Components of cement, steel, materials, labour,P.O.L., etc. shall be pre- determined for every work and incorporated in the conditions of contract attached to the tender papers included in Schedule "E". The decision of the Engineer-in-charge in working out such percentage shall be bindingon the contractors.	Deleted
5.7.3	**Clause 10 CC** Page No. 22 The compensation for escalation for cement, steel, materials, P.O.L shall be worked as per the formulae given below:	Deleted
5.7.4	**Clause 10 CC** Page No. 22 <u>a)Adjustment for component of "cement"</u>	**Clause 10 CC** Page No. 22 **Deleted**

5.7.5	**Clause 10 CC** Page No. 23 b) Adjustment for component of"steel"	**Clause 10 CC** Page No. 23 **Deleted**
5.7.6	**Clause 10 CC** Page No. 23 c) Adjustment for civilcomponent (Except cement &	Deleted
5.7.7	**Clause 10 CC** Page No. 23 **18** Xm : Component of materials expressed as percent of the total value of work.	Deleted.
5.7.8	**Clause 10 CC** Page No. 23 d) Adjustment for component of"POL"	Deleted
5.7.9	**Clause 10 CC** Page No. 24 ix) Provided always that the provision of the precedingClause 10 I and 10 CA shall not be applicable for contracts where provisions of this clause are applicable, but in cases where provisions of this clause are not applicable, the provisions of Clause 10 I and 10 CA will become applicable.	Deleted
5.8	**Clause 11** para 3, Page No. 24 The contractor shall ..... complywith the ..... construction.(Repeated)	**Clause 11** para 3, Page No. 24 **Deleted**
5.9.1	**Clause 12.2** para 1, Page No. 25 DEVIATION, EXTRA ITEMSAND PRICING: In the case of extra item (s) the contractor may within fifteen days of receipt of order or occurrence of the item (s) claim rates, supported by proper analysis, for the work and the engineer-in-charge shall within one month of the receipt of the claims supported by analysis,after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.	**Clause 12.2** para 1, Page No. 25 DEVIATION, EXTRA ITEMS AND PRICING: In the case of extra item (s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item (s) claim rates, supported by proper analysis, for the work and the engineer-in-charge shall within one month of the receipt of the claims supported byanalysis, after giving consideration to the analysis of the rates submitted by thecontractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined. In rate analysis material & labour components shall be as per CPWD ASR.However when item/material not available in DSR then rate of material to be as per market rates based on invoice and rate of labour as per statutory Authority.

5.9.2	**Clause 12.2**para 2, Page No. 25 In the case of substituted items the rate for the agreementitems (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para.	**Clause 12.2** para 2, Page No. 25 In the case of substituted items (items that are taken up **with partial substitution or in lieuof items of work in the** contract) the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para.
5.9.3	**Clause 12.5:** page 25 For the purpose of operation of **Schedule "F"**, the followingworks shall be treated as works relating to foundation:	**Clause 12.5:** page 25 For the purpose of operation of **Schedule "F",** the following works shall be treated as works relating to foundation: **(i) For buildings, compound walls:** plinth level or 1.2 m above ground level, whichever is lower, excluding items of flooring and D.P.C. but including base concrete below the floors. **(ii) For abutments, piers, retaining walls of culverts & bridges, walls of water reservoirs and well staining:** All works upto 1.2 m above the bed level. **(iii) For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/tanks and other elevated structures, where floor level is not determinate:** All works upto 1.2 m above the average ground level or bed level. **(iv) For reservoirs/tanks (other than overhead reservoirs/tanks):** All works upto 1.2 ms above the ground level. **(v) For basement:** All works upto 1.2m above ground level or upto floor 1 level whichever is lower. **vi) For Roads:** all items of excavations and filling including treatment of sub-base and soling work. **vii) For water supply lines, sewer lines, underground SWD & similar works:** all items of work below ground level except items of piping work. **viii) For open storm water drains:** all itemsof work except lining of drains.
	(i)For buildings, compound walls: plinth level or 1.2 metres (4 feet) above ground level, whichever is lower, excluding items of flooring and D.P.C. but including base concrete below the floors. **ii) For abutments, piers, retaining walls of culverts and bridges, walls of water reservoirs:** the bed of floor level.	
	For retaining walls wherefloor level is not determinate: 1.2 metres above the average ground level or bed level. **iv) For roads:** all items of excavations and filling including treatment of sub-base and soling work. **For water supply lines, sewer lines, underground SWD & similar works:** all items of work below ground level except items of piping work. **vi) For open storm water drains:** all items of work except lining of drains.	

5.10	**Clause 14** Page No. 26 CANCELLATION OFCONTRACT IN FULL OR PART: (Deleted & merged with clause-3)	Clause 14 Page No. 26 Carrying out part work atrisk & cost of contractor: **If contractor:** At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 days in this respect from the Engineer-in-Charge; **or** ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it ortakes effective steps to remedy it within 7 days even after a notice in writing is given in that behalfby the Engineer-in-Charge; **or** iii) Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge. The Engineer-in-Chargewithout invoking action under clause 3 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to Government, by a notice in writing totake the part work/part incomplete work of any item(s) out of his hands and shall have powers to : a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; **and/or**(b) Carry out the part work / part incomplete work of any item(s)by any means **at the risk and cost of the contractor**. The Engineer-in-Charge shall determine the amount, if any, is recoverable fromthe contractor for completion of the part work/ part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by Government because ofaction under this clause shall not exceed 10% of thetendered value of the work. In determining the amount, credit shall be given to the contractor withthe value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the workand use of plant and machinery belonging to the contractor. The certificate of the Engineer-in- Charge as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only betaken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the department are less than the amount payable to the contractor at his agreement rates, thedifference shall not be payable to the contractor. Any excess expenditure incurred or to be incurred by Government in completing the part work/ part incomplete work of any item(s) or the excess loss of damages suffered or may be suffered by Government as aforesaid after

		allowing such credit shall without prejudice toany other right or remed y available to Government in law or per as agreement be recovered from any money due to thecontractor or any account, and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days. If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract. In the event of above course being adopted by the Engineer-in-Charge the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract."

5.11	**Clause 19** para 1, Page No. 28 .....The contractor shall also abide by the provision of the Child labour (Prohibition & Regulation) Act – 1998.	**Clause 19** para 1, Page No. 28 …… The contractor shall also abide by the provision of the Child labour (Prohibition & Regulation) Act – 1986.
5.12	**Clause 19A** Page No. 28 No labour below 18 years: No labour below the age of 18 (eighteen) years shall be employed on the work.	**Clause 19A** Page No. 28 No labour below 14 years: No labour below the age of 14 (fourteen) years shall be employed on the work.
	CS-5: CCC-2008: P.36	

5.13	**CLAUSE 37 :** **LEVY / TAXES PAYABLE BYCONTRACTOR:** (i) Sales Tax / VAT or any other tax on materials in respect of this contract shall be payable by the contractor and Government shall not entertain any claim whatsoever in this respect. (ii) The contractor shall deposit royalty and obtain necessary permit as required for supply of the sand, aggregate, stone etc. from local authorities. (iii) If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Government of India and does not any time become payable by the contractor to the State Government. Local authorities in respect of any material used by the contractor in the works then in such a case, it shall be lawful to the Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.	**CLAUSE 37 :** **LEVY / TAXES PAYABLE BY CONTRACTOR:** i) **GST,** Building and other Construction workers Welfare cess or any other tax, Levy or Cess in respect of **input for or output by** this contract shall be payable by thecontractor and Government shall not entertain any claim whatsoever in thisrespect except as provided under Clause 38. (ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red bajri, stone, kankar, etc. from local authorities. (iii) If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Government of India and does not any time become payable by the contractor to the State Government, Local authorities in respect of any material used by the contractor in the works then in such a case, it shall be lawful to the Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.
	CS-2: ***CCC-2008 P.8 &Section-2 : SGFP-2*** *Following para is added in Section- 2 as second last para (Item Rate Tender & Contract for Works) "I / We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice ofDepartment, then I/we shall be debarred for tendering in ACTREC/TMC in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee"*	

5.14	**CS-5: CCC-2008: P.36** **CLAUSE 38:**	**Clause 38:**
	CONDITIONS FOR REIMBURSEMENT OF LEVY/TAXES IF LEVIED AFTER RECEIPT OF TENDERS: i) All tendered rates shall be inclusive of all taxes and levies	**CONDITIONS FOR REIMBURSEMENT OF LEVY/TAXES IF LEVIED AFTER RECEIPT OFTENDERS:** i) All tendered rates shall be inclusive of any tax, levy or cess applicable on last stipulated date of

	payable under respective statutes. However, **pursuantto the Constitution (46th Amendment) Act 1982,** if any further tax or levy is imposed by Statute, after .the last dateof the receipt of tender and the contractor thereupon necessarily and properly pays such taxes / levies, the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not,in the opinion of the Engineer- in-Charge (whose decision shall be final and binding on the contractor) attributable to delay in execution of work within the control of the contractor. ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Government and / or the Engineer-in-charge and further shall furnish such other information / document as the Engineer-in-charge may require from time to time. iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy, **pursuant to the Constitution (46th Amendment) Act 1982,** give a written notice thereof to the Engineer- in-charge that the same is given pursuant to this condition, together with all necessary information relating	receipt of tender including extension if any. No adjustment i.e. increase or decrease shall be made for any variation in the rate of **GST**, building and other construction workers Welfare Cess or any tax, levy or cess applicable **on inputs**. However, effect of variation in rates of **GST** or Building and other Construction Welfare Cess or imposition or repeal of any other tax,levy or cess applicable on **output of the works** contract shall be adjusted on either side, increase or decrease. Provided for Building and other Construction workers welfare cess or any tax (other than GST), levyor cess varied or imposed after the last date of receipt of tender including extension if any, any increase shall be reimbursed to the contractor only if the contractor necessarily and properly pays such increased amount of taxes/levies/cess. Provided further that such adjustment including **GST** shall not be made in the extended period of contract for which the contractor alone is responsible for delay as determined by authority for extension of time under Clause-5 in Schedeule 'F'. (ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Government and/or the Engineer-in-Charge and shall **also** furnish such other information/document as the Engineer-in-Charge may require from time to time. (iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy **or cess**, give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

GST Clause:

5.15	----	Since the **GST (by subsuming indirect taxes such as VAT, Excise duty, service tax, octroi etc.)** is applicable w.e.f. 01.07.2017, GST as applicable in respectof this contract shall be payable by the contractor and Government will not entertain any claim whatsoever in respect of the same.
5.16	**Construction and Demolition Waste Management Plan**	Regarding disposal of Construction waste from site of work, the agency has to abide by the guidelines of Construction and Demolition (C&D) waste management planas approved by MCGM/CIDCO and any other regulations issued by statutory authorities in the matter from time to time and Department is not responsible in any wayin this regard. i. Royalty for excavation, transportation, filling of earthwork etc. including obtaining permission from statutory authority shall be borne by the contractor. ii. Contractor shall strictly follow the statutory rules and regulations o f the Construction and Demolition Debris Management Plan for project site. iii. Surplus Excavated materials shall be disposed from construction site at approved disposal ground of MCGM/CIDCO including cost of necessary statutorycharges, applicable. iv. Construction debris shall also bedisposed from construction site at approved disposal ground of MCGM/CIDCO/PMC including cost of necessary statutory charges, applicable. v. Contractor shall submit acknowledgement of challan for eachtrip for unloading of Construction and Demolition waste material as per the standard format vi. Contractor shall be responsible and liable for penalty if any as prescribed by the local Authority in case of in case of procedure laid down in the Construction and Demolition Debris Management Plan.

DN/C-3 :- Form of Bank Guarantee for Performance Guarantee/Security Deposit/Mobilization Advance

On non-judicial stamp paper of minimum Rs. 100

(Guarantee offered by Bank to ACTREC/TMC in connection with the execution of contracts)

Form of Bank Guarantee for Earnest Money Deposit / Performance Guarantee/Security Deposit/ Mobilization Advance

A. Whereas the ,ACTREC/TMC on behalf of the President of India (hereinafter called "The Government")has invited bids under .....(NIT number)..... dated…… for..... (name of work.) The Government has further agreed to accept irrevocable Bank Guarantee for Rs..... (Rupees ..... only) valid upto..... (date)*..... as Earnest Money Deposit from ..... (name and address of contractor) .....,(hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR**

Whereas the ACTREC/TMC on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number with .....(name and address of the contractor) …… (hereinafter called "the Contractor") for execution of work..... (name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. ..... (Rupees ..... only) valid upto..... (date). as **Performance Guarantee/ Security Deposit/Mobilization Advance** from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

B. We,..... (indicate the name of the bank) (herein after referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding Rs..... (Rupees ..... only) on demand by the Government within10 days of the demand.

C. We, ... (indicate the name of the Bank) do here by undertake to pay the

amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. ..... (Rupees ..... on|y)

D. We, ... (indicate the name of the Bank) ..... , further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any court or Tribunal,our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.

E. We, ... (indicate the name of the Bank) further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions rerating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

F. We, ... (indicate the name of the Bank)……., further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

G. This guarantee will not be discharged due to the change in constitution of the Bank or the Contractor.

H. We, ... (indicate the name of the Bank)……., undertake not to revoke this guarantee except with the consent of the Government in writing.

I. This Bank Guarantee shall be valid up to .....unless extended on demand

by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. …….. (Rupees…… only) and unless aclaim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date ……..

Witness:

1. Signature…… Authorized signatoryName and address
   Name
   Designation
   Staff Code no. Bank Seal

2. Signature……
   Name and address

* Date to be worked out on the basis of validity period from the date of submission of tender.

** In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/ security deposit/ mobilization advance, as the case may be.

NIT No : TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024
Name of the Work : SITC of central surveillance system at ACTREC campus

TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

To,
Director
Tata Memorial Centre,
Kharghar, Navi Mumbai- 410208.

Tender Ref: ----------

Name of Work:

I/We read the various conditions to tender including general conditions and hereby agree to abide by the said conditions. I/we also agree to keep this tender open for acceptance for a period of 150 (One hundred Fifty) days from the date fixed for opening the same and in default thereof. I/we will be liable for forfeiture of my/our "Security Deposit" to Tata Memorial Centre, ACTREC. I/We will execute the work as per the quoted rates and hereby bind myself/ourselves to execute the work in all respects during the period of contract from the date of issue of letter of acceptance of the tender. I/we also hereby agree to abide ACTREC/TMC general conditions of the contract as amended from time to time and to carry out the work according to the drawings, specifications and special conditions of the contract laid down by ACTREC.

A sum of _____- is hereby forwarded as Earnest Money in the form of D.D/ Bank's P.O. through receipt No. _____ dated _____ for Rs._____ The full value of Earnest Money shall stand forfeited without prejudice to any other rights to remedies if:-

A) I/we do not execute the contract documents immediately after getting information form ACTREC.
B) I/we do not commence the work within 15 days after issue of the letter including work order to that effect. Until a formal agreement is prepared and executed, acceptance of this tender shall constitute a binding contract between us subject to modifications, as may be mutually agreed between us indicated in the letter of acceptance of my/our offer for this work.

Yours Faithfully,

(Signature of the Bidder, with

Official Seal)

Note for Make of product:

Agency shall adhere with the specifications of the tender and structural requirement of this tender while providing any specific make. Prior approval shall be obtained from the engineer in charge for item listed in the tender and following criteria for make of material shall be fulfilled.

Following documents are required for approval of make:
1. Make proposed must be listed in government tenders Or
2. Bidders must have completed work by using make/model with CPWD, MES, DAE, TMC.
3. Bidders must provide proof confirming to Sr. No. 1 and 2.
4. Makes/Models of items of all fixtures/items/Material should got approved from Engineer in charge for that purpose samples shall be provided for approval.
5. Bidders are required to submit all relevant test certificates such as BIS, ISI etc. and brochures along with bid in support of proposed make.
6. BIS, ISI and any other relevant certificate as applicable.
7. The make provided should be compatible to existing system of the building.

Compliance form-1

NIT.: **TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024**

Sr. No	Description	Unit	Qty	Compliance from Agency (YES/ NO)
1	Quoted Price for each item to include the Supply, Installation, Testing & Successful Commissioning of the said item including submission of all drawings,Certificates, Approvals & documentation. Vendor shall consider below the required components, firmware, accessories etc., that shall fully comply to all the requirement given in the technical Specification			Yes / No
2	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 16 - Port 10/100/1000T 802.3at PoE + 4-Port 100/1000X SFP Ethernet Switching ports with power budget upto 240Watts, 4x10G SFP+ ports, as per the technical specifications. (for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate) for Connecting OFC Cable.	10	Nos	Yes / No
3	Supply, Installation, Testing and Commissioning of 16 Port Fully Loaded Patch Panel as per Tender Specification.(for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate).	10	Nos	Yes / No
4	Supply, Installation, Testing and Commissioning of 24 AWG Multi-strands CAT6A Patch Cords as per the Tender Specification.(for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate)	160	Nos	Yes / No
5	Supply, Installation,Testing and Commissioning of 1000BASE-LX/LH SFP,(10G) compatible with the IEEE 802.3z 1000BASE-LX standard, operates on standard single-mode fiber-optic link.	40	Nos	Yes / No
6	SITC of 12 Port LOADED LIU with LC Coupler & LC Pigtail – 1 Mtr	40	Nos	Yes / No
7	SITC of LC-LC-DX-Giga Fibre Patch Cords	480	Nos	Yes / No
8	SITC of Armoured Single mode 12 core Fibre optic cable, Low Smoke outer Sheath , with Required Junction Boxes,Connectors and jointing accessories whereever required with required terminations as required with Cable tie`s & Tags.	5500	Mtrs	Yes / No

9	SITC of Armoured Single mode 12 core Fibre optic cable, Low Smoke outer Sheath , with Required Junction Boxes,Connectors and jointing accessories whereever required with required terminations as required with Cable tie`s & Tags.	4500	Mtrs	Yes / No
10	SITC of 32 mm dia (OD-33.40 mm & ID-32.3 mm nominal) HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench, suitable for operation at site conditions, complete as required.	5500	Mtrs	Yes / No
11	SITC of 33 mm dia (OD-33.40 mm & ID-32.3 mm nominal) HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench, suitable for operation at site conditions, complete as required.	4500	Mtrs	Yes / No
12	Supply, Installation, Testing and Commissioning of 6U Wall Mount Server Rack with double section Cabinet along with Power Manager and FAN. (for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gates)	10	Nos	Yes / No
13	Supply & istallation of RCC hume pipe 200 mm Dia along with collars jointing of pipes with cement, consolidating for road crossing all as per the instructions of EIC.	200	Mtrs	Yes / No
14	Excavation and back filling of all kind of soil , THROUGH JCB OR MANUAL All cables to be laid in ground burial format through HDPE pipes. For laying to HDPE pipes use JCB or manual digging for all types of soil, ground, roads, pavers etc. Direct burial of cables are not allowed. Scope covers:1)Excavation of ground up to a depth such that the top of the cable shall be minimum 1.5 Mtr * 500 mm below the finished ground level.2)Supply, Laying and Pulling of HDPE pipes in Horizontal Trenches Size of pipe shall be appropriate to cables but not less than 32 mm internal dia.3)Back filling and compacting of the excavated trenches and removal of excess earth from the site.4)Supply, Fixing, Painting & Sign writing of Route marker and Joint Indicators5)Supply of cable & HDPE pipes is not be considered in the cost. Supply and fixing of 6)Pulling of cables through pipes and ducts shall be part of scope7)To prepare shop drawing and to take approval of consultant & client at each stage.8)To prepare & submit as-built drawing and handing over document to end user. To repair the road as existing after completion of excavation and backfilling work	800	Mtrs	Yes / No

15	Road cutting and back filling. road crosing , concreat roads, hard rocks. depth up to 1.5mts x 500 mm (width) Any road crossing to be finished as actual with bituminus	150	Mtrs	Yes / No
16	All Optical Fiber Splazing with other accessories at every juncture	1	LS	Yes / No
17	Supply, Installation, Testing and commissiong of 10KVA, 3Phase Input / 3phase output Monolithic Online Double Conversion UPS System. Required Ah SMF Batteries of approved make suitable for 10 KVA Modular UPS frame to feed 10 kVA load with minimum 8 Hours backup. Vendor to consider 15 to 20 mtrs of cable length from UPS to Battery.The type of Cable shall be Uni-nyvin and required battery caps. Cost including MS base frame. MS racks for housing batteries suitable for 10KVA UPS frame, including battery circuit , battery breaker ,input output MCCB of required ratings , earthing pit for UPS (02 Nos) , copper earthing for all equipments.	1	Nos	Yes / No
18	Supply, Installation, Testing and commissiong of 4KVA, 1Phase Input / 1phase output Monolithic Online Double Conversion UPS System. Required Ah SMF of approved make suitable for 4 KVA Modular UPS frame to feed 4 kVA load with minimum 8 Hours backup. Vendor to consider 15 to 20 mtrs of cable length from UPS to Battery.The type of Cable shall be Uni-nyvin and required battery caps. Cost including MS base frame.MS racks for housing batteries suitable for 4KVA UPS frame, including battery circuit breaker. battery breaker ,input output MCCB of required ratings , earthing pit for UPS (02 Nos) , copper earthing for all equipments.	1	Nos	Yes / No
19	Supply and laying of 3Core x 2.5 Sqmm Copper FRLS XLPE insulated armoured Cable. & Termination	1500	Mtrs	Yes / No
20	a. 32A DP 10KA MCB type Isolator D Curve including enclosure	4	Nos	Yes / No
21	b. 63A TPN 25KA MCCB type Isolator including enclosure	4	Nos	Yes / No
22	Neworking Components at Cameras Side			Yes / No
23	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 16-Port 10/100/1000T 802.3at PoE Ethernet Switching ports with power budget. Should not exceed more than 12 Cameras. as per the technical specifications	8	Nos	Yes / No
24	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 24-Port 10/100/1000T 802.3at PoE Ethernet Switching ports with power budget. Should not exceed more than 20 Cameras. as per the technical specifications	2	Nos	Yes / No

25	Supply, Installation, Testing and Commissioning of 16 Port Fully Loaded Patch Panel as per Tender Specification,	8	Nos	Yes / No
26	Supply, Installation, Testing and Commissioning of 24 Port Fully Loaded Patch Panel as per Tender Specification,	2	Nos	Yes / No
27	Supply, Installation, Testing and Commissioning of 24 AWG Multi-strands CAT6A 1 Meter Patch Cords as per the Tender Specification	140	Nos	Yes / No
28	Supply, Installation, Testing and Commissioning of 6U Wall Mount Server Rack with double section Cabinet along with Power Manager and FAN Supply Installation testing and commissioning of Supply & installation of 24U Closed double section Server Rack with complete accessories & testing :SITC of IT rack -24U Wall mounted rack 24U(double section) with acrylic glass door with the accessories -[Two Fan position tray with two 90 CFM fans(AC 230V),3 Horizontal cable manager- 3nos, AC power panel strip with 5 X 5 AMP /15Amp sockets ,fuse and on/off switch, 1 packet mounting hardware.	10	Nos	Yes / No
29	Supply, Installation, Testing and Commissioining of UTP Unshielded twisted pair CAT 6A FRLS Unarmoured cable with min 23 AWG solid bare copper core, with FRPVC Sheath (Fire retardant PVC Compound), supporting 10 / 100/1000 Ethernet, 155 Mbps ATM, 1000 Mbps IEEE 802.3ab Ethernet,	6250	Mtrs	Yes / No
30	Supply, Surface & Concealed laying on the walls, partitions etc., of 1.5 mm thick FRLS 25 mm PVC Conduits with all mounting saddles, spacers, screws with the required junction boxes, and cables glands as per client requirement	5300	Mtrs	Yes / No
31	Termination Accessories for CAT6A Cables	150	Nos	Yes / No
32	Cameras The CCTV equipment must not support GB/T 28181 protocol.			Yes / No
33	Supply, Installation, Testing and Commissioning of 2MP IP Dome POE, 3.6mm - 10mm lens Camera, minimum 1/2.9" Progressive scan CMOS Maximum Resolution 1920x1080 (2MP), ONVIF supported, with true WDR, 30m IR, H.264, H.265 and MJPEG/ MPEG4 encoding support, 3 streams with capability to set independent FPS & compression selection for each stream, 0.07 lux Color ; 0.2 lux Color ,Video analytics of motion detection & camera tampering, IP 67 & IK 10 protection, with provision to connect upto 256GB SD card, UL listed & CE certifiied, mounting boxes, glands, back plates, required OEM Surface/ Ceiling/ pipe/ corner/ parapet/ pendant with wall mount bracket/In Ceiling, etc.	121	Nos	Yes / No

34	Supply, Installation, Testing and Commissioning of 5MP IP Bullet POE, 3-10mm Varifocal lens Camera, minimum 1/3" to 1/2.8" progressive scan CMOS sensor, ONVIF supported, with true WDR, 30m IR, H.264, H.265 and MJPEG/ MPEG4 encoding support, 4 streams with capability to set independent FPS & compression selection for each stream, sensitivity of 0.3 Lux or better with IR Off for colour and 0.0 Lux with IR ON for B/W, edge video analytics of motion detection & camera tampering, IP 67 & IK 10 protection, with provision to connect upto 1TB SD card, UL listed & CE certifiied, mounting boxes, glands, back plates, required OEM Surface/ Ceiling/ pipe/ corner/ parapet/ pendant with wall mount bracket/In Ceiling, etc.	4	Nos	Yes / No
35	SITC of 4 X 4 Back Box for Cameras IP 67 heavy duty type	130	Nos	Yes / No
36	Supply, Installation of 256 GB SD Cards for Cameras	130	Nos	Yes / No
37	Servers, Storages and VMS			Yes / No
38	Supply, installation, testing & commissioning of Server as per following specifications: Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each Internal Controllers: PERC H330, H730P, H740P, HBA330 External Controllers: H840, 12 Gbps SAS HBA Software RAID:S140 Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module1 48 DDR4 DIMM slots, Supports RDIMM /LRDIMM, up to 2933MT/s, 6TB max Up to 12 NVDIMM, 384GB Max Up to 24 Intel® Optane™ DC persistent memory DCPMM, max 12.28TB, (15.36TB max with DCPMM and LDRIMM) Front drive bays: Up to 24 x 2.5” SAS/SATA (HDD/SSD) with up to 12 NVMe PCIe SSD, max 184.32TB Platinum 1100W, 1100W 380VDC, 1600W, 2000W, 2400W Gold 1100W-48VDC Windows Server 2019 or better, Antivirus Softwares. suitable to handle upto 2000 cameras. If the Vendor System requires more than what is specified above, The vendor to quote for the same and explain the same in spearate Note.	1	Nos	Yes / No

39	Supply, installation, testing & commissioning of Server as per following specifications: Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each Internal Controllers: PERC H330, H730P, H740P, HBA330 External Controllers: H840, 12 Gbps SAS HBA Software RAID:S140 Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module1 48 DDR4 DIMM slots, Supports RDIMM /LRDIMM, up to 2933MT/s, 6TB max Up to 12 NVDIMM, 384GB Max Up to 24 Intel® Optane™ DC persistent memory DCPMM, max 12.28TB, (15.36TB max with DCPMM and LDRIMM) Front drive bays: Up to 24 x 2.5" SAS/SATA (HDD/SSD) with up to 12 NVMe PCIe SSD, max 184.32TB Platinum 1100W, 1100W 380VDC, 1600W, 2000W, 2400W Gold 1100W-48VDC Windows Server 2019 or better, Antivirus Softwares. suitable to handle upto 2000 cameras. If the Vendor System requires more than what is specified above, The vendor to quote for the same and explain the same in spearate Note.	1	Nos	Yes / No
40	Supply, Installation, Testing, and Commissioning of storage (SAN) Windows Server, Linux, Oracle Solaris, AIX, HP-UX, macOS, VMware, ESX , NVMe/TCP, NVMe/FC, FC, iSCSI, 5U with 84 SSD / HDD slots , 25GbE ports (10GbE autoranging), With 4 X 2 (8 Nos of SFP Modules). To be Conencted directly in OFC.	2	Nos	Yes / No
41	Supply, Installation, Testing, and Commissioning of 12 TB Enterprises Hard Disk for SAN for 475 Cameras for 45 days of Backup.	20	Nos	Yes / No
42	Enterprise Edition Base license for Cameras (Asha Niwas & Santhi Sadhan + Existing 350 cameras)	475	Per Cam	Yes / No
43	Enterprise Edition Base Failover License for Cameras (Asha Niwas & Santhi Sadhan + Existing 350 cameras)	475	Per Cam	Yes / No

44	Workstation/PC for VMS software CPU: Intel Core i5 11700 or better Memory 16GB DDR4 2133 Dual Channel,512 GB SSD Hard drive GPU card: NVIDIA with 2x8 GB Graphics RAM Operating System: Microsoft Windows 10 Professional and Anti Virus. With 21" LCD Spot monitor. 1 No of Client PC for Connecting with Server and Video Wall at Asha Nivas and Security Officer Room	2	Nos	Yes / No
45	Supply, Installation, Testing and Commissioning of 72" LED TV (2K Resolution) with following minimum specifications: - of 72" LED TV 24 x 7 operation monitor, - with aspect ratio of 16:9, - resolution of full HD or better, - brightness of 450 cd/m2 or better, - Contrast Ratio (Native): 2400:1 without IPS/ 1100:1 along with IPS, viewing angle of 178 degree, - suitable for single phase AC supply 180-230 V, 50 Hz, - VGA/ HDMI/ DVI-D/ DP ports, USB Port and with table top as well as wall mount.1 No of Client PC for Connecting with Server and CRI 2nd floor server room and Security Officer Room	2	Nos	Yes / No
46	High-Speed HDMI v2.0 Cable with Ethernet, 18 GBPS Transmission Speed, Supports 3D/4K@60Hz Ultra HD Resolution, 10 Meters	2	Nos	Yes / No
47	Video wall display 2x2 with controller and accessories for Asha Nivas	1	Set	Yes / No
48	Supply, Installation, Testing and Commissioning of 2 mm thick CRCA Sheet Powder Coated 42U rack of suitable height as required with cable manager, power strip, lockable caster wheels to house all the Server, NAS & SAN with TCPIP interface & with cooling fans with properly ventilated louvers and openable, lockable doors	2	Nos	Yes / No

	Indoor Dome type, Wide angle camera 2MP	Compliance from agency YES / NOS
For Indoor Dome type, Wide angle camera, the following specification shall apply:		YES / NO
1	IP Fixed Dome Day/Night High Resolution 2MP Camera	YES / NO
2	1/3" Progressive/De-interlace CCD/CMOS Sensor	YES / NO
3	Wide dynamic range	YES / NO
4	Minimum Illumination: 0.5 lux	YES / NO
5	fixed lens 2.6/2.8/3/3.6mm, Auto Iris lens	YES / NO
6	Manual pan/tilt adjustment up to 350°/+-90°	YES / NO
7	Automatic Gain Control, BLC, White balance: On/Off	YES / NO
8	3D Noise reduction: ON/Off	YES / NO
9	Tamper Detection: On/Off	YES / NO
10	Compression: Dual stream, H.265	YES / NO
11	Resolution and Performance: 1920 x 1080@ 20-25FPS on 3 streams respectively at the same time	YES / NO
12	Bandwidth: 64Kbps to 6Mbps	YES / NO
13	Built-in Multi-zone motion detection	YES / NO
14	Testing of each cameras model Bandwidth on LAN / WAN network.	YES / NO
15	Minimum 3 streams per camera	YES / NO
15	Unicast, Multicast, RTP, TCP, UDP, HTTP, IGMP, ICMP, DHCP, DNS	YES / NO
16	10/100 Base-T Auto sensing, Half/Full Duplex (RJ45)	YES / NO
17	S/N Ratio: >50db	YES / NO
18	Built in Micro SD cared slot to support up to 32GB storage for local recording	YES / NO
19	At least one potential free Alarm IN and one Alarm out	YES / NO
20	Privacy masking zones	YES / NO
21	Power: 802.3af class 3 PoE	YES / NO
22	Indoor clear bubble surface mount enclosure.	YES / NO
23	Operating Temp: 0° C to 50° C	YES / NO
24	Humidity: 90% (Non-condensing)	YES / NO
25	UL, CE and FCC certified	YES / NO
26	ONVIF Compliance	YES / NO
27	IEEE802.1X & NDAA (NATIONAL DEFENCE AUTHORISATION ACT)	YES / NO
28	Housing Should be from the camera OEM only. Environment protection as per outdoor application IP67 or better and IK10 vandal proof and integrated with camera body.	YES / NO
29	Mounting Should be from the camera OEM only Ceiling or wall type.	YES / NO
30	Certification Specific model should be UL/ FCC/ CE, Open network video compliant with APIs and SDKs available without any additional charge.	YES / NO
31	Service facility OEM Service center Should be available in India	YES / NO
32	Vendor has to submit OEM Authorization Letter- Manufacturer Authorization Form (MAF)along with the Technical Specification.	YES / NO

	IP Varifocal bullet day / Night Network camera	YES / NO
Bullet Type Camera in Outdoor type, the following specification shall apply:		YES / NO
1	IP Varifocal lens Bullet Day/Night Very High Resolution (5MP) WDR Outdoor Camera	YES / NO
2	1/3" Progressive/De-interlace CCD/CMOS Sensor	YES / NO
3	Optical Wide dynamic range 100>dB	YES / NO
4	Minimum Illumination: Color 0.2 lux and B/W 0.5 lux	YES / NO
5	fixed lens 6mm / 8m, Auto Iris, D/N lens, Megapixel	YES / NO
6	IR sensitivity between 680 to 1100nm using IR cut filter	YES / NO
7	Manual pan/tilt adjustment up to 350°/+-90°	YES / NO
8	Automatic Gain Control, BLC, White balance: On/Off	YES / NO
9	3D Noise reduction: ON/Off	YES / NO
10	Tamper Detection: On/Off	YES / NO
11	Compression: Dual stream, H.265	YES / NO
12	Resolution: 2560 x 1920 @ 25FPS and up to 1280 x 1024 @ 12FPS on 3 streams respectively at the same time	YES / NO
13	Bandwidth: 64Kbps to 6Mbps	YES / NO
14	Built-in Multi-zone motion detection	YES / NO
15	Testing of each cameras model Bandwidth on LAN / WAN network.	YES / NO
15	Minimum 3 streams per camera.	YES / NO
16	Unicast, Multicast, RTP, TCP, UDP, HTTP, IGMP, ICMP, DHCP, DNS	YES / NO
17	10/100 Base-T Auto sensing, Half/Full Duplex (RJ45)	YES / NO
18	S/N Ratio: >50db	YES / NO
19	Built in Micro SD cared slot to support up to 32GB storage for local recording	YES / NO
20	At least one potential free Alarm IN and one Alarm out	YES / NO
21	Privacy masking zones	YES / NO
22	Power: 802.3af class 3 PoE	YES / NO
23	Operating Temp: 0° C to 50° C	YES / NO
24	Humidity: 90% (Non-condensing)	YES / NO
25	UL, CE and FCC certified	YES / NO
26	ONVIF Compliance	YES / NO
27	IEEE802.1X & NDAA (NATIONAL DEFENCE AUTHORISATION ACT) Security Protocol	YES / NO
	is must in all models. IEEE 802.1X Shall be applied and implemented to all cameras also Demonstration for this protocol shall be shown, all required server licenses or	YES / NO
	components shall be considered, no extra cost for this shall be provided.	YES / NO
28	Housing Should be from the camera OEM only. Environment protection as per outdoor application IP67 or better and IK10 vandal proof and integrated with camera body.	YES / NO

29	Mounting Should be from the camera OEM only Ceiling or wall type.	YES / NO
30	Certification Specific model should be UL/ FCC/ CE, Open network video compliant with APIs and SDKs available without any additional charge.	YES / NO
31	Service facility OEM Service center Should be available in India	YES / NO
32	Vendor has to submit OEM Authorization Letter- Manufacturer Authorization Form (MAF)along with the Technical Specification.	YES / NO

	IP PTZ Dome POE Camera		
Sr. No.	**Functionality / Description**	**Minimum Specifications**	Compliance from agency YES / NOS
1	Pick-up device	1 / 2.8 inch XMOR CMOS sensor or better	YES / NO
2	Signal System	PAL	YES / NO
3	Active Pixels (No. of effective pixels)	2 Mega Pixels or better	YES / NO
4	Signal to noise ratio	50dB or better	YES / NO
5	Video Output (for analogue output)	1 Vp-P, BNC Type	YES / NO
6	Electronic Shutter Speed	Minimum 1/10,000 sec, Maximum 1sec	YES / NO
7	Gain Control	Auto	YES / NO
8	Exposure Control	Shutter Speed, Iris, AGC	YES / NO
9	White balance Mode	ATW, ATW pro, manual	YES / NO
10	Wide Dynamic Range	Yes , better than 130dB or better	YES / NO
11	Pan angle	360 degree, endless	YES / NO
12	Pan speed	300 degree / sec or better	YES / NO
13	Tilt angle	220 degree	YES / NO
14	Preset Pan Tilt speed	500 degree/ sec or better	YES / NO
15	Wide Dynamic Range	130db or better	YES / NO
15	Audio	Bi-Directional 2way, G.711, G.726, AAC	YES / NO
16	Voice Alert	Required	YES / NO

	functionality		YES / NO
17	Privacy Zone Masking	Required	YES / NO
18	Video Resolutions	1920×1080, 1680×1056, 1280×1024, 1440×912, 1280×960,	YES / NO
		1376×768,1280×800, 1280×720, 1024×768, 1024×576,	YES / NO
		800×600, 800×480, 768×576,720×576, 704×576, 720×480,	YES / NO
		640×480, 640×368, 384×288, 320×240, 320×192	YES / NO
19	Compression format	H.264 & H.265 (High, Main & Base profile)/ JPEG	YES / NO
20	Streaming and Frame rate	Stream 1: 1920x1080 @20FPS,	YES / NO
		Stream 2: 1280x720 @20FPS, Stream 3: 640x80 @20FPS	YES / NO
21	Ethernet Interface	RJ-45	YES / NO
22	Web Server	Built in Web Server is required	YES / NO
23	Operating temperature	-5°C to +50°C (14°F to 122°F)	YES / NO
24	Storage temperature	-20°C to +60°C (-4°F to +140°F)	YES / NO
25	Lens type	Auto Focus Zoom Lens	YES / NO
26	Zoom Ratio	Optical 30x, Digital 12x	YES / NO

27	Focal length	4.3mm to 129mm	YES / NO
28	F-number	1.6 or better in wide angle	YES / NO
29	Horizontal viewing angle	63.7 degree to 2.3 degree	YES / NO
30	Protocols	IPv4, IPv6, TCP, UDP, ARP, ICMP, IGMP, HTTP, HTTPS,	YES / NO
		FTP (client/server), SMTP, DHCP,DNS, NTP, RTP/RTCP, RTSP, SNMP(MIB-2)	YES / NO
31	Unicast / Multicast	20 simultaneous clients / Unlimited at H.264	YES / NO
32	Authentication	IEEE 802.1X	YES / NO
33	Card Slots	SD / SDHC up to 64GB	YES / NO
34	I/O Port	At least 3 alarm input and 2 alarm output	YES / NO
35	External Microphone Input	Yes	YES / NO
36	Audio line output	Mini Jack	YES / NO
37	Minimum Illumination (at AGC ON and 30 IRE, 1/30sec, 30 FPS)	Color: 0.4lux or better, B/w: 0.03 lx	YES / NO
38	Image Settings	Voice Alert, Visibility Enhancement to improve picture quality under poor light condition, Wide Dynamic range of Min 130dB to ensure usable picture under strong backlight condition, 3D Dynamic Noise Reduction, Privacy Zone Masking, Auto Flip, Bi-directional audio transfer, FTP	YES / NO

		support, Day/ Night functionality	YES / NO
39	Presets	256 or better	YES / NO
40	Tours	5 or better	YES / NO
41	Power Requirement	AC24V, HPoE	YES / NO
42	Approvals	UL 2044, FCC, CE	YES / NO
43	ONVIF Conformance	Yes (ONVIF conformity certificate to be provided)	YES / NO
44	Outdoor Enclosure	Weather proof IP66 rated, IK10 Vandal/Impact Proof,	YES / NO
45	Accessories in enclosure	Pendant Mount; Thermostatically controlled heater	YES / NO
46	Edge Based analytics	Require following edge analytics. 1)Face detection.	YES / NO
		2)Object left over. 3)Object removal. 4)Intrusion detection.	YES / NO
		5) Passing / Trip wire.	YES / NO
		6) Tamper alarm.	YES / NO
		7) Intelligent Motion detection	YES / NO
47	Image stabilizer	Required.	YES / NO
	ANPR (Automatic Number Plate Recognition Camera)		
	Camera	**Description**	YES / NO
	Sensor	1/2.8” 2MP CMOS	YES / NO
	Focal length	4.7 to 47mm, motorized zoom	YES / NO

	Shutter	Auto/Manual, range: 1/25 to 1/100000 s	YES / NO
	Minimum illumination	0.001lux (F1.6)	YES / NO
	Image	Description	YES / NO
	Image collection format	1080P@25 (default), 1080P@30, 1080P@50,	YES / NO
		1080P@60	YES / NO
		Main stream: 1080P (default), 720P, D1	YES / NO
	Resolution	Sub stream: 720P (default), D1, 2CIF, CIF Third stream: D1 (default), 2CIF, CIF	YES / NO
	Frame rate	60, 50, 30, 25 (default), 22, 20, 18, 16, 15, 12.5,	YES / NO
		10, 8, 6, 5, 4, 3, 2, 1	YES / NO
	Video compression	H.264 (default), H.265	YES / NO
	ROI	Supports up to 8 regions	YES / NO
		Supports 8 overlay areas and allows contents	YES / NO
	Video OSD	including date, time, date & time, zoom ratio, custom contents	YES / NO
	Image OSD	Supports 8 overlay areas and allows contents including time, license plate number, device ID, camera ID, allowlist, image authentication ID, custom contents (3 items), location	YES / NO
	Smart	Description	YES / NO
	Application scenario	Vehicle speed ≤30km/h	YES / NO
		Supports simultaneous application to entry/exit scenes	YES / NO
	Software:		YES / NO
	Supported OS	Linux/Windows	YES / NO

	Type of Plates	Recognition for English fonts	YES / NO
	Image Input	Still Image or Live Video Input	YES / NO
	Sample Processing Time	100ms @ CPU 2.0 GHz, Colour images, 768x576 or 640x480 pixels (PAL/NTSC)	YES / NO

	Recording Server (1:1 Configuration)		
Sr. No.	**Parameter**	**Minimum Technical Specifications**	
1	Application	Server compute for hosting application (VMS Management appliance)	YES / NO
2	CPU	Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each, Processor with 3.4 GHz 12MB Cache each or better	YES / NO
3	Memory	Min 16 GB DDR4	YES / NO
4	NICs	Ethernet On-board dual 1Gb network adapter	YES / NO
5	Storage/ OS Hard Disk	Min 2 X 480 GB SSD (RAID1) with “Keep Your Hard Drive” For OS & Application.	YES / NO
6	PCI Slots	(1x PCIe x8) slots	YES / NO
7	Video Input	VGA	YES / NO
8	Power Supply	Platinum rated Dual, Hot-plug, Redundant Power Supply (1+1)	YES / NO
9	Operating System	Latest windows edition	YES / NO

10	Safety approvals	The server must hold CSA or UL Listed Safety Approval.	YES / NO
11	Compliance standards	BIS, IEC 60950-1, European Norm EN 60950-1, CISPR 22/CISPR 24, EN55022/55024	YES / NO
12	Warranty	5 years NBD support with “Keep your hard drive” option	YES / NO
13	iDRAC	iDRAC9 Express to be consider	YES / NO
14	Approved Makes	Dell, HPE, Lenovo, BCD, IBM & VMS OEM Appliances	YES / NO
15	Features	The appliance must be a turnkey solution with Video Management Software pre- installed and only camera and other licenses to be activated at site.	YES / NO
		The appliance should be extensively tested and hardened for security to prevent malicious attack	YES / NO
		The solution must have machine-learning based antivirus native to the solution.	YES / NO
		The solution must have built in maintenance tool	YES / NO
		developed by the manufacturer of the video management.	YES / NO
	Application Server		YES / NO

Sr. No.	Description	Specifications	YES / NO
1	Application	Server computer for hosting application (VMS Management appliance)	YES / NO
2	CPU	Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each, Processor with 3.4 GHz 12MB Cache each or better.	YES / NO
3	Memory	Min 16 GB DDR4	YES / NO
4	NICs	Ethernet On-board dual 1Gb network adapter	YES / NO
5	Storage/ OS Hard Disk	Min 2 X 480 GB SSD (RAID1) with “Keep Your Hard Drive” For OS & Application.	YES / NO
6	PCI Slots	(1x PCIe x8) slots	YES / NO
7	Video Input	VGA	YES / NO
8	Power Supply	Platinum rated Dual, Hot-plug, Redundant Power Supply (1+1)	YES / NO
9	Operating System	Latest windows edition	YES / NO
10	Safety approvals	The server must hold CSA or UL Listed Safety Approval.	YES / NO

1	1	Compliance standards	BIS, IEC 60950-1, European Norm EN 60950-1, CISPR 22/CISPR 24, EN55022/55024	YES / NO
2	1	Warranty	5 years NBD support with "Keep your hard drive" option	YES / NO
3	1	iDRAC	iDRAC9 Express to be consider	YES / NO
4	1	Features	The appliance must be a turnkey solution with Video Management Software pre- installed and only camera and other licenses to be activated at site.	YES / NO
			The appliance should be extensively tested and hardened for security to prevent malicious attack. The solution must have machine-learning based antivirus native to the solution.	YES / NO
			The solution must have built in maintenance tool developed by the manufacturer of the video management.	YES / NO

Compliance form-2

NIT.: **TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024**

Name of the Vendor		
Sr. No	**Description**	**Compliance from agency**
1	We have understood technical requirements and understood the same in right perspective.	Yes/No
2	We have quoted for all the items in Financial Bid in the prescribed format of the tender documents.	Yes/No
3	We have read the financial bid thoroughly before filling it and understood the same in right perspective	Yes/No
4	We understood that partial/incomplete/vague offers are liable for rejection.	Yes/No
5	We have understood the eligibility criteria as well as criteria for identifying lowest bidder.	Yes/No
6	There are deviations from our (bidder) side.	Yes/No
7	Deviations have been mentioned on separate page and attached with technical bid in detail. Deviation is supported with necessary documents, catalogues etc.	Yes/No
8	We have noted that accepting or rejecting the deviation and consequently rights to qualify and disqualify the agency remains with competent authority of TMC- ACTREC.	Yes/No
9	We have understood and accepted that accepting the tender & issuing order in full or in part will be decided by the TMC-ACTREC competent authority as per policy of the center.	Yes/No
10	We agree to provide the Defect liability period of 5 years. DLP will start from the date of final handing over of the complete system.	Yes/No

Date

Signature

NIT No : TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024
Name of the Work : SITC of central surveillance system at ACTREC campus

NEFT FORM

Dated. __.__.____

NIT.: **TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024**

1	Name of the Vendor	
2	Vendor Address & Other Particulars	
3	PAN NO.	
4	GST NO.	
5	Mobile No.	
6	Email ID	
7	Account Holder's Name **(Title of the Account)**	
8	Bank Account No.	
9	Bank Name, Branch & Address	
10	9-Digit MICR code of the bank	
11	Account type **(CURRENT)**	
12	IFSC Code **(attach Xerox copy of cheque)**	

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete information, I would not hold the user institution responsible. I agree to discharge the responsibilities as a participant under the scheme.

Signature of the Tenderer with seal.

Certified that the particulars furnished above are as per our records

Signature of the authorized official from the

Bank Stamp:

Date:

Note: Xerox copy of Cheque may be attached, without which the form will not be accepted *(Only for New vendor of ACTREC)*

Scope of work:

The scope is SITC of server based IP CCTV surveillance system , New camera Installation and migration of existing cameras of different makes on server including related active and passive components at ACTREC , Kharghar NaviMumbai.

- The successful Bidder will be responsible for supply, design, installation, testing & commissioning, training, handover and onsite warrantee of the intended CCTV Surveillance System at ACTREC , Kharghar Navi Mumbai for a period of five years. DLP period of 5 years will start from date of final handing over of the system. The Bidder will make arrangements for routine, preventive and breakdown maintenance activities under DLP period CAMC by deploying qualified team as and when required. The Bidder will complete the works in all respects and in doing so, provide/ supply all facilities not covered above, but nevertheless required for the satisfactory performance of complete system.

- Supply: The successful bidder will complete the Supply of requisite hardware/software/active and passive components and other items as per BOQ within 120 days of the issue of work order.

- Installation & Commissioning: Successful bidder will complete the installation, Commissioning and Integration of all equipments and accessories mentioned in BOQ as per relevant standards and specification of tender, within stipulated time i.e. within 120 days from the date of issue of work order. The successful bidder will submit the layout design of complete solution and will Install & Commission the IP CCTVs & associated system as per site locations provided as per drawings. The scope of works include the Installation & Commissioning of Network Equipment for providing efficient CCTV Network to ACTREC but not limited to the following tentative works:

- The OFC will be laid in cable trench/ tray or underground wherever required using HDPE pipe. The top of the casing/ conduit pipe containing the fiber cables will be at least 2.5 to 3 feet below the ground surface covered with sand and bricks subject to at least 0.3 m below the drain inverts. However, in case of special site conditions, variable depth/ dimensions may be permitted depending on the site conditions.

- The Bidder shall restore the dug up area/ sites to their original conditions, clear the area of any unused earth/ debris, and dispose off such debris/ earth at the sites away from the work site as permitted by and to the satisfaction of end user.

- UTP Cable Laying through PVC Pipe, Casing including all materials.

- Installation of IO / Crimping / Patch Panel / Rack / Switch and System Integration.

- Laying and Termination of UTP cable, all cabling must be structured. Labelling of Cables, I/O"s, Jack Panel, Switches for new connections for clear marking / understanding. The Bidder will give

the full details of the space requirement with dimensions in advance.

- Repair / Refurnishing work owing to damage caused due to cabling, Civil work or any other work related to this Job / Project. The contractor shall be responsible for relevelling/repairing the damage caused due to any civil/other works. There should not be any hanging or uncovered wire. All civil works including digging, routing, repair/refurbishment required for completion of job shall be in scope of contractor.

- All the active and passive components shall be of standard make and should meet the technical specifications as mentioned of said NIT failing which bid is liable to be rejected. The Patch cord should be branded and factory crimped.

- Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment's and/or needed for erection, completion & safe operation of the equipment's as required by applicable codes though they may not have been specifically detailed in the tender document, unless included in the list of exclusions. All similar standard components / their parts of similar standard equipment's provided, shall be interchangeable with one another.

- The Bidder shall be responsible for ensuring the operability, maintainability, and reliability of the complete equipment covered under this specification within his quoted price. This work shall be in compliance with all applicable standards, statutory regulations and safety requirements in force of the date of award of this contract.

- The bidder should ensure while installation and integration of existing LAN with new Network connectivity, day-to-day functioning of official work and existing network setup/connectivity/internet connectivity should not get disrupted / hampered. The Bidder will undertake communication infrastructure works in a manner so as to cause least public inconvenience. The Bidder would be expected to suitably cordon-off the area to ensure public safety and encouraged to execute the works during off-peak times so as to cause minimum inconvenience to the public traffic.

- All the aspects of safe delivery, installation, commissioning of CCTV surveillance system will be the exclusive responsibility of the bidder. The Bidder has to abide by all safety and security norms of ACTREC while working inside ACTREC premises.

- All type of Hardware, tools, measuring equipment etc. required for installation & commissioning of the links and for support / maintenance are in the scope of Bidder. ACTREC will provide input power 220 V AC source only and the bidder has to make his own arrangements for extension of this power source.

- Site Acceptance Testing (SAT) & Handover of the CCTV Network: Site Acceptance Test (SAT) of the complete CCTV surveillance system will be carried out by bidder after the completion of installation and commissioning as per scope The SAT plan will be submitted by the bidder during

the installation & Commissioning. The period of SAT will be 30 days. After successful completion of SAT, CCTV surveillance system will be handed over to ACTREC. The warranty of 5 years of the surveillance system shall begin after successful handover of complete CCTV surveillance system.

- All the software licenses like Windows OS , Server OS, VMS, Antivirus etc. should be in the name of ACTREC. The licenses should be in the form of paper or electronic licenses.All the operating / setup driver‟s CD‟s, Licenses, operational manuals, Data Sheets and Similar accessories made available by Equipment vendor would be handed over by the Firm to ACTREC after Successful installation, testing and commissioning work is over.

- The bidder shall also be responsible for deputing qualified personnel for installation, testing, commissioning, SAT and other services under his scope of work as per the specification. All required tools and tackles for completing the scope of work as per the specification is also the responsibility of the bidder.

- The complete work to be carried out as per technical specifications and as directed by OIC ES< EIC ES

- All existing camera to be migrated on server The existing camera details are as below:

Sr No	Description	IP Camera Qty	NVR
1	CRI CRC WB MAIN GATE	52	2
2	Hadron building	65	6
3	HWCC building	100	4
4	RRU building	101	4
5	Outdoor CRI , CRI and Kitchen in CRC	37	2
		355	18

Agency has to check the existing camera make and models for compatibility.

- New cameras for Asha Niwas and Santi Sadan Building , Installation of CCTV cameras at preferred locations covering the whole common area including entrance to floors, corridor and sections.

- Server location is Main server at Asha Niwas Building and redundant server on CRI Building 2nd floor

- All the fiber cable routine to be carried out as per drawing
- Supply, installation, testing and commissioning of items mentioned in BoM, F.O.R destination.
- All the products and their warranty certificates shall be issued in the name of ACTREC
- All cameras should be IP based. –

- The IP Based Video Surveillance system shall be a Hybrid System with distributed architecture

having control station at the Server Room/Control Office & Viewing facility at the Security office , location directed by EIC ES

- The proposed Solution should allow ACTREC officials to locally and centrally monitor its facilities from a remote location on a Portable/Fixed personal computer monitor
- Once the Order is placed, it will be the vendors' responsibility to make the project functional. Any additional cost incurred for completing the project and for which the vendor has not bid at the time of submission of the final offer will be borne by the vendor. –
- The CCTVs Surveillance System need to be functional on 24x7 basic i.e. 24 hours all the days and need to have 45 days data storage capacity for all cameras.
- SUCCESSFUL BIDDER shall have to identify the location as of the cameras to cover the desired field of view and installing cameras, for provisioning of the required power, etc . All mounting devices for installation of IP cameras to enable pan and tilt capabilities shall be included in the costs of the respective component. The same is also applicable to cross-heads and cross- arms, mounting brackets, stainless steel bands, screws and other accessories if needed. All the equipment ,software and workmanship that form a part of the service are to be under warranty throughout the term of the service contract from the date of service acceptance and commencement. The warranty shall require the SUCCESSFUL BIDDER to be responsible to bear all cost of parts, labor, field service, pick- up and delivery related to repairs, corrections during the Project Period for any or all such incidental expenses incurred during the warranty period.
- During implementation, if observed that any camera / field equipment requires change in the field of view / orientation or needs servicing or cleaning, it shall be done by BIDDER without any extra cost. In case of request for change in location of field equipment post installation, the same shall be borne by Purchaser at either a unit rate as per commercials or a mutually agreed cost.
- .SUCCESSFUL BIDDER shall ensure that all the hardware is placed inside the control cabinets / Racks that could withstand temperatures prevalent in Navi Mumbai Kharghar City throughout the year.
- CIVIL III. SUCCESSFUL BIDDER shall be responsible for carrying out all the work required for setting up all the field components of the system including:
- Soft soil digging and backfilling after cabling where required

GUARANTEE/WARRANTY (Defect Liability Period 05 Years)

The warranty and is required for the five years for complete material installed. The warranty should begin after successful handover. The 5 years comprehensive onsite warranty will be governed by Service Level Agreement(SLA). During the warranty period, the firm shall attend to service break calls received within the time period as mentioned in SLA . In case of the firm failing to do so, the damages/defects (if any) be got rectified by ACTREC and the claim may be adjusted from the firm's pending dues. Alternatively, the ACTREC may dispose off the damaged / defective material and set off the sale proceeds in respect of its claim against the supplier. During this period if equipment, which has been attended by the contractor, is found to be defective, the same will have to be attended again without any additional charges. In case, the contractor fails to respond within a reasonable time, the job will be got done from any other agency and entire expenditure thus incurred will be debited to the contractor.

Scope during DLP period of 5 years

Agency has to provide quarterly visit to check system healthiness and to attend unlimited breakdown call as and when required

- Routine Maintenance The bidder will carry out all routine maintenance activities and troubleshooting requirement of CCTVs, Network, Servers & associated items during DLP period of 5 years so as to make them fully available for functioning of surveillance system at ACTREC
- Preventive Maintenance The bidder will carry out the preventive maintenance of the complete system as per schedule prepared in consultation with EIC ES and will maintain the routine sapres required for preventive maintenance. Agency to provide quarterly service visit and unlimited breakdown calls as and when required.
- Corrective/ Breakdown Maintenance In addition to the preventive maintenance, the Bidder will attend break down calls whenever emergency arises. The bidder will attend all the breakdowns/ operational technical snags of CCTV cameras and its associated systems & accessories as and when asked by ACTREC.
- Liaison with OEM/Channel partners & Minimum Required Spares During the preventive/ corrective/breakdown activities, if any of the CCTVs/equipment/accessories are found faulty or not working then the same will be replaced by the bidder on free of cost & No extra cost will be paid to the bidder for repair/replacement of the equipment/ spares. During the replacement, if the defective item is identified as obsolete then the item of same or higher specification & compatible will be replaced by the bidder without any cost. The bidder himself will liaison with OEM/Chanel partners of supplied item under the contract for their repair/replacement etc The bidder shall note that the charges for repair/replacement, transportation/freight/octroi & insurance etc, if any from ACTREC to OEM works and back to ACTREC shall be borne by the bidder.It is obligatory for the bidder to keep the minimum number of routine spares required for preventive maintenance to ensure minimum down time without any additional cost. Two nos Bullet camera, one PTZ camera, two nos. switches and related passive components & consumables items should be kept as spare at any time, on site, during whole period of contract to replace any faulty camera, immediately, if any.
- The bidder will make all the necessary changes in the configuration of surveillance system with due permission from ACTREC for sustainability & load sharing/balancing or any other requirement. The bidder will make arrangements for timely updation of required software or hardware, firewall & Antivirus upon subsequent patch release Periodic backup of all system configurations and data as required by ACTREC will be ensured by the bidder.

- Delivery of entire material to ACTREC campus, Kharghar, Navi Mumbai including packing, handling, transporting, clearing, loading/unloading etc.
- Installation of all components/equipments as per BOQ at locations as directed by Engineer In charge.
- Commissioning and integration of complete system to the satisfaction of end user.
- Agency to submit final as build drawings in CAD / PDF two sets mentioning all locations , cabling details rack locations , IP addresses as instructed by EIC.

NIT No : TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024
Name of the Work : SITC of central surveillance system at ACTREC campus

TECHNICAL INSTRUCTIONS TO THE BIDDERS

1. The major components covered under Bill of Quantity (BoQ) for Supply, Installation, Testing, Commissioning of CCTV surveillance system for which minimum technical specifications have been mentioned as Technical Specification are given below: -

1.1. IP based Bullet Camera

1.2. IP based PTZ Camera

1.3. IP based ANPR Camera

1.4. Network Video Management & Analytics Software

1.5 Control Room IT Infrastructure:

1.5.1. Server – Network Video Management, Recording & Analytics servers

1.5.3. Storage –

1.5.4. Desktop – Video Management Client Access Desktop

1.5.5. Online UPS with back up for Cameras and servers

1.5.6. Display – LED Display and video wall

1.7. Active Network Components

1.7.1. Layer 3 Switch (Core Switch)

1.7.2. PoE Switch

1.7.3. Firewall and Antivirus Security

1.7.4. Passive Network Components etc.

2. Since this is a turnkey project and the bidder quoting for only one part or partially of the project shall not be considered. The bidder is required to quote for the complete work, though ACTREC reserve the right to award the work in full or even cancel the tender.

3. The bidder has to quote considering the location of the cameras and other accessories necessary for successful design, supply, installation testing commissioning of CCTV Surveillance System in ACTREC , Kharghar , Navi Mumbai. The accessories shall include but not limited to the indicated here. The accessories are indicative and it is intended to install the system in successful manner. The Bill of quantity (BOQ) mentioned is an indicative list of items that may be used for successful installation.

4. ACTREC reserves the right to change the location at the time of installation. Total numbers of cameras envisaged are minimum quantity to be supplied and may vary depending upon the requirement to cover all proposed areas. Any additional camera shall be supplied and -installed at the unit rate given in the contract.

5. The technical specifications for various components for supply, installation, testing and commissioning (SITC) work of CCTV Surveillance System are based on the current industry standards and requirements of

ACTREC. The Technical specifications are mentioned in the tender document. These are minimum technical specifications and the prospective bidders can quote products with proven higher specifications and at competitive price

6. Recording should be made available for 45 days

7. The existing CCTV infrastructures like OFC, CCTV cameras and passive components installed at ACTREC may be utilized to interconnect with new system wherever required by ACTREC.

8. Special Design and Layout Conditions: ACTREC , project is located in Kharghar , Navi Mumbai . The humidity content in the air during monsoon remains slightly high. The electronic items are prone to fault due to moisture ingress under such conditions. In addition to this Temperature may varies from Zero Degree to 50 Degree in Kharghar Navi Mumbai region. Keeping these points in view the CCTV Surveillance system to be proposed at ACTREC shall be able to withstand the harsh environmental conditions for the day and night operation for monitoring of activities on 24X7 basis. The security and surveillance system will be seamlessly integrated for monitoring from security and surveillance room in the project.

Setting up of Server Room: The Servers, Operator Workstations, monitoring display screens and storage system of the CCTV Systems shall be installed in the following locations as per requirement of ACTREC

CCTV Control Rooms at

a) Video wall , Main server and Central Control room at Asha Niwas Gr floor
b) 2nd server Control Room at 2nd Floor CRI building
c) Control Room, at Main Gate

The successful bidder will make arrangements for electronic earthing of the network equipment installed in server room, by two separate and distinct connections of the appropriate earthing resistance as per IS standard.

Bidder shall provide manuals for configuration of all components in hardcopy as well as in softcopy. Bidder shall provide schematic diagram of the complete setup showing all components with IP address of switches in hardcopy as well as in softcopy

The Bidder shall supply and install all the required software/ Hardware, equipment and services that are necessary for the installation and functioning of the CCTV Surveillance System at ACTREC whether explicitly mentioned in BOQ/specifications or not, to fulfill the intent of the specification and to ensure the operability, maintainability, reliability and security of the complete CCTV Network within the quoted prices without any extra cost to ACTREC.

The Bidder will undertake that supplies of necessary maintenance equipment and spare parts will be made available for all the equipment and the complete System for a period of 5(Five) years from date of handover to ACTREC.

Agency has to submit country of Origin certificate for following:

1. CCTV camera
2. VMS software
3. Servers

The bidder will supply, install, commission, integrate and demonstrate the working of complete CCTV surveillance System with full capabilities in network setup at ACTREC. It will be the responsibility of the bidder to make the entire system fully functional and shall also have to integrate with other security systems already in place

SITE OF WORK: -

The prospective tenderer is advised to study the tender documents, concerned specifications and other instructions carefully. The tenderer shall inspect the proposed site of work and acquaint themselves with the site conditions, working hours and all relevant items connected with execution of work. The submission of tender shall be deemed to have been done after careful study and examination of the tender papers with full understanding of the implications thereof. The prospective bidders are also advised to visit ACTREC for

a) Site Survey before bidding

b) To see the site conditions before quoting the price.

c) To design the solution as per site requirement.

d) To understand the site condition.

TECHNICAL COMPLIANCE

The bidder should submit the Manufacturer Authorizations Form (MAF) from the OEMs for :

- CCTV Camera
- Network Video Management Software (NVMS)
- Network Switch
- Server
- Optical Fiber Cable

Bidders are advised to mention only one OEM against each item in the Unpriced BoQ. i.e., all the cameras of one line item, must be of same OEM. Bidder can offer different OEM for different line items of BoQ. The bidder has to submit MAF of the respective offered OEM, otherwise, the bid would be considered as non-responsive and may be summarily rejected. If the Bidder is not OEM, then bidder should provide Documentary evidence that they are authorized System Integrator who are authorized to supply & install the product & provide warranty on behalf of OEM / original manufacturer of this tender. Wherever Authorized Distributors are submitting the bid, Manufacturers Authorization Form (MAF)/Certificate with OEM details such as name, designation, address, e-mail Id and Phone No. required to be furnished along with the bid.

The bidder should submit Data Sheet of the following products

- CCTV Camera
- Network Video Management Software (NVMS)
- Network Switch
- Server
- Workstation & Laptop.
- UPS
- Optical Fiber Cable
- Video wall

The same are to be uploaded along with the bid documents so that HPGCL can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection. Data Sheet/Technical Catalogue of should be available on OEMs' website. Non-compliance shall result in rejection of tender.

The bidder will submit the following undertaking in respect of following: -

OEM or Authorized Seller of OEM should have a registered office in India to provide after sales service support in India. Undertaking from Offered OEM's having its service and support center in India, should be submitted for following: -

- CCTV Camera
- Network Video Management Software (NVMS)
- Network Switch
- Server

Signed declaration on letterhead from offered OEM for CCTV Camera and NVMS that offered camera models & NVMS software are integratable, ONVIF Profile S, Profile G compliant or better and support the configurations of the system. NVMS must have capability of being scalable (For Viewing and recording). An undertaking by the Bidder in this regard must be submitted.

The bidder should submit "No Malicious Code Certificate" from offered OEM for CCTV Camera and Network Video Management Software (NVMS).

Bidder shall quote only those items in the bid which are not obsolete/End of Life in the market and shall not be declared End of Support by the OEM. However, in case, if any OEM declares any offered item/software "End of life" within the currency of contract i.e. five years period starting from date of installation, then respective OEM/ System Integrator should provide service & technical support till the currency of contract without any extra cost to the ACTREC An undertaking by Bidder in this regard must be submitted.

General Conditions Req. for IP Video Systems

1) The Camera Manufacturer has been engaged in the production of IP video surveillance systems for a minimum of twenty twenty-five years or more and has a proven track record for innovation and success with customers. It is necessary to provide documentary evidence to support this claim. A proven track record of success will increase likelihood of the manufacturer being able to provide long-term support to its eco-system of customers and technology partners.

2) The network cameras provided must adhere to the ISO 9001 & 14000 standards during the manufacturing process. This ensures supply chain quality and environmental management respectively. The manufacturer must publish a compliance statement on their website.

3) The manufacturer of the IP video cameras and VMS must have been an active member of the Open Network Video Interface Forum (ONVIF) for a minimum of fifteen years and has a proven track record of providing open network solutions. The technical bid should include a certificate from ONVIF that verifies the membership details and start date. It is essential that the offered cameras and/or VMS have never been blacklisted or banned by ONVIF. Compliance and collaboration with ONVIF affirms the manufacturers commitment to open standards and allows for flexibility and modularity in the long-term operation of the IP video surveillance system.

4) The bidder must ensure that the entire manufacturer portfolio is fully compliant with Section 889 of the John S McCain National Defense Authorization Act (NDAA). This will reduce the risk of foreign espionage and/or sabotage. A compliance statement must be available on the manufacturer's website and a written / signed statement on company letterhead must be provided on request.

5) The MAC IDs of the IP video surveillance equipment CCTV cameras that will be provided must be registered under the name of the Manufacturer of the IP video surveillance system equipment. The technical bid should include an enclosed undertaking from the IP video surveillance system equipment manufacturer regarding this matter. When products are supplied with MAC IDs belonging to other companies, this is an indication of OEM products and severely lessens trust in the product supply chain.

6) The Camera Manufacturer must provide an assurance that, to the best of their understanding and belief, they have not been subjected to any blacklisting or criminal cases filed by any State or Central Government Department, Central or State Public Sector Undertakings (PSUs), Police, or any global entities within the past five years from the date of bid submission. The bidder is required to submit an undertaking from the manufacturer, providing detailed information.

7) The video surveillance system manufacturer must fully comply with EU’s GDPR and apply those principles globally to protect the privacy of those using the manufacturer’s equipment.

8) The IP surveillance systems manufacturer must follow all applicable export control laws and regulations pertaining to its operations, including but not limited to the U.S. Export Administration Regulations (15 C.F.R. § 730 et seq.) and the European Union Dual Use regulation (EU) 2021/821. This commitment extends to promoting strict compliance on an on-going basis with the terms and conditions of such export controls. A compliance statement must be available on the manufacturer's website.

9) The Manufacturer must furnish a comprehensive Cyber Security Hardening guide that outlines how to enforce Cyber Security Policies on the manufacturers products. This guide must be updated on a continuing basis. The manufacturer shall also publish its own CVE's disclosing any cyber related activities and solutions to maintain cybersecurity best practices and protections. The guide and CVE list should be publicly available on the company website on a landing page that links to all relevant Cyber Security resources.

10) The Manufacturer must publish and follow a Security Development Model for all software and firmware development. This must be published on the company website. This must include at minimum the following components: Risk Assessment, Vendor Assessment, Data Privacy, Open-Source Security assessment, threat modeling, static code analysis, software composition analysis, threat modeling, external penetration tests, vulnerability scanning, internal security assessments, vulnerability management, incident management, product/solution security status and a public bug bounty program. This must be managed by a dedicated Security Group at the manufacturer. A program like this will affirm the manufacturers commitment to Cyber Security.

11) The outdoor network cameras provided must adhere to the protection standards set by IEC 60529 (IP66). This ensures that the video security cameras selected have a high level of protection against the intrusion of solid objects (including dust and water). This makes the cameras ideal for a wide range of applications including outdoor surveillance. It is important that each camera has an appropriate IP rating for its durability, reliability, and effectiveness in fulfilling its security role.

12) The Cameras must be capable of accommodating verified and authorized third-party analytics, as confirmed by both the Camera Manufacturer and the Analytics OEM. The ability to run a wide range of analytics (including 3rd party) is critical to ensuring vendor neutrality and flexibility.

13) It is required that the cameras possess the necessary features to support HTTPS and SSL/TLS, enabling the encryption and secure transmission of both administration data and video streams. Furthermore, the cameras should allow for the uploading of signed certificates to ensure enhanced authentication and communication security. Supporting HTTPS and SSL/TLS is crucial for a network security camera because it encrypts data transmitted between camera(s) and server(s), protecting the data from eavesdropping or tampering.

14) The Camera is required to have the capability to support various security features such as IEEE 802.1X authentication, Password protection, IP address filtering, HTTPS encryption, Digest authentication, User access log, and Centralized certificate management. These advanced security features protect network security cameras from unauthorized access and cyber threats, keeping communication secure and surveillance data safe.

15) To ensure secure operation based on cryptographic keys, it is essential for the camera to have a secure cryptographic element or TPM at the hardware level. Executing encryption and decryption processes directly on the hardware significantly reduces the risk of tampering and unauthorized access by isolating these processes from software-based threats and protects secure keys from capture even if the system is compromised.

16) An open and published API (Application Programmers Interface) must fully support the camera, offering all the essential information required for seamlessly integrating its functionality into third-party applications. An open and published API is critical to vendor neutrality, ideal for futureproofing and offers the best support for wide integration options.

17) The manufacturer must ensure that the implemented API is standardized and compatible with all their network video products. Additionally, it should seamlessly integrate with IP Audio systems and support third-party VMS integration. A standardized and widely compatible API simplifies integration efforts and streamlines troubleshooting efforts.

18) The Camera Manufacturer is responsible for offering firmware/software upgrades at no additional cost during the warranty period. Additionally, the manufacturer is obligated to provide long-term support for the firmware, focusing solely on addressing critical bugs, security vulnerabilities, and performance concerns. Continuous updating of software and firmware updates is critical to maintaining secure and robust systems.

19) A 5-year warranty is required for all the surveillance cameras, and the warranty document should be submitted on the Camera Manufacturer Letterhead. A sufficiently long warranty period asserts the authenticity and commitment of the Camera Manufacturer, protecting the buyer's investment and operational continuity.

20) The network cameras provided must possess the capability to adjust the GOP/GOV for optimizing the bit rate versus image quality tradeoff.

21) The network cameras provided must have H.265 compression technology. H.265 ensures efficient encoding of video to reduce bandwidth and storage.

22) The network cameras provided must provide a "smart codec" option, that can further reduce bandwidth in H.264/H.265 compression by for example dynamically extending the GOP interval, varying compression locally depending on scene complexity and/or motion and reducing frame rate dynamically in low activity scenarios. This will enable savings in storage and bandwidth on the network.

23) The network cameras must provide technology that gracefully handles difficult lighting situations and prioritizes forensic details in the image. When comparing manufacturers in this regard, it is recommended to setup a side-by-side comparison between manufacturers in the same scenario(s). This will ensure usable video once the system has been deployed, and also increase accuracy of any video analytics running in the system.

24) The network cameras provided must be IPv4 RFC Compliant. An RFC-compliant IPv4 device should as an example perform address conflict detection before claiming an IP-address. RFC compliance ensures proper operation with all other RFC compliant network infrastructure. With RFC compliance means all relevant standards applying to IPv4 starting with RFC 791 and all RFCs derived from this standard.

25) The network cameras provided must have SIP capabilities. SIP (Session Initiation Protocol) provides device compatibility and flexibility.

26) The network cameras provided must have MQTT capabilities. MQTT (Message Queuing Telemetry Transport) provides device compatibility and flexibility to talk to 3rd party devices such as IoT.

27) To ensure efficient service delivery, it is essential for the IP Video Surveillance manufacturer to have its own RMA center in the United States for the past ten years. This enables the IP Video Surveillance manufacturer to promptly address service requests as and when required. Furthermore, the support system should incorporate a toll-free helpline and an effective ticket tracking mechanism.

28) The submission of technical compliance for all major items by the vendor is required on the manufacturer letterhead.

29) To prevent the use of backdoor methods to bypass authentication, it is imperative that the device does not include any concealed credentials such as accounts, passwords, tokens, or URLs that are only known to the vendor. Additionally, the device vendor should not have the capability to reset a lost or forgotten account password without resorting to a factory default.

30) The manufacturer shall be compliant with ISO 27001 for its Information Security Systems. Compliance with ISO 27001 demonstrates that the manufacturer uses internationally recognized processes and best practices to manage its internal information infrastructure and systems that support and deliver its services to customers and partners.

31) Cryptographic modules in the cameras should be compliant with Common Criteria EAL4 and/or FIPS 140-2/3 level 2 to verify correctness and integrity of cryptographic operations and to verify various tamper-countermeasures, such as self-verification, tamper resistance, and other resistance measures.

32) For bids falling under regulations of the General Services Administration (GSA) the manufacturer must maintain an update list of products that are listed on the GSA Schedule and therefore also complies with TAA (Trade Agreements Act) and COO (Country of Origin). This ensures the products can be procured under the terms of the GSA.

General:

Providing all inclusive service including all spares, labour, software installation/up gradation, repairs to cameras ,NVR network switches, Monitors **attending faults of** related cabling ,labour charges for relocation of cameras etc. during defect liability period (DLP) of 5 (Five) year from the date of virtual completion.

All engineering, equipment, labour and permits required to satisfactorily complete the work as per specifications.

Any other work related to but not specifically mention above, required for completion of the job as per the intent and scope of work.

The tenderer should indicate in his tender the complete description of the working of the system/sub systems and their power requirements with all relevant brochures / literature etc. in addition to those details called for in the Technical Specifications.

The Tenderer shall carefully check the specifications and shall satisfy himself that the equipment offered is complying with the client's requirements and specifications and shall take full responsibility for the efficient operation of the equipment offered.

Tenderer shall supply all tools, plants, labour and consumables etc as required for installation, testing and commissioning of the entire system.

- Bidder or its OEM should have capability and infrastructure to provide technical support in India.
- Proposed OEMs should also have their own office in India.
- All the basic system, software, hardware & license should be from the same OEM.
- Proposed OEM should have Dedicated / Toll-Free Telephone No. for Service Support.
- Data Sheet of the products offered in the bid are to be uploaded along with the bid documents.

Drawings and documents

The tenderer shall on its own expense arrange to inspect the premises where the work is to be executed before submission of bid and acquaint himself with all the relevant information required for preparing and submitting his bid.

After award of the work, the successful tenderer shall prepare and submit the following minimum drawings for EIC approval and execution of work. However, such approval shall not absolve the contractor from the responsibility of meeting specifications and requirements and proper functioning of the system.

The drawing indicating the schematic plan for the entire equipments.

The drawing indicating the location of various cameras, network switches and other equipments in the building.

The drawing showing the area to be covered by individual cameras.

Drawing for the cabling schedule

Any other drawing as required or advised by the EIC
Final As build drawing to be submitted.

After completion of work, the contractor shall submit as executed layout drawing (prepared on AutoCAD) of the entire system on a CD/DVD/pendrive and three hard copies of the same for records.

Packing and Despatch: The equipments shall be properly and securely packed in boxes suitable for multiple handling and transportation under Indian conditions. All equipment/components shall be delivered at premises where work is to be executed.

It is not the intent to specify completely herein all details of the works covered under this tender. Scope of work may also include such other related works as indicated in the schedule of quantities although they may not be specifically mentioned in the above paragraphs and all such incidental items of works not specified but reasonably implied and necessary for completion of the job as a whole, as directed by the Engineer-in-Charge and as directed hereunder. All works shall conform in all respects to high standards of engineering, design and workmanship and shall fulfill the anticipated performance during the expected life of the system. I/We hereby declare that I/we have read and understood the above information.

Training :

The scope of work envisages that the Bidder shall undertake to train the staff nominated by Department in different aspects of equipment, functioning, testing, operation & administration free of any charge from DoT HQ.

The PSU shall at every stage of installation; testing and commissioning provide all facilities for adequate training to the staff nominated by the ACTREC who may be deputed to work on the project.

The system Administration and Maintenance Training program, at the user's location, will be structured so as to train 10 (Ten) officers/officials nominated by department.

Technical evaluation

Based on technical documents , technical compliance and on site demonstration of proposed solution , similar installation , site visit of similar installations, performance certificate for works completed, and fulfilling technical and financial criteria mentioned in tender documents.

Financial

Agency to quote rates in Basic only (Excluding GST)

Schedule Of Quantities:

Sr. No	Description	Unit	Qty
1	Quoted Price for each item to include the Supply, Installation, Testing & Successful Commissioning of the said item including submission of all drawings,Certificates, Approvals & documentation. Vendor shall consider below the required components, firmware, accessories etc., that shall fully comply to all the requirement given in the technical Specification		
2	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 16 -Port 10/100/1000T 802.3at PoE + 4-Port 100/1000X SFP Ethernet Switching ports with power budget upto 240Watts, 4x10G SFP+ ports, as per the technical specifications. (for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate) for Connecting OFC Cable.	10	Nos
3	Supply, Installation, Testing and Commissioning of 16 Port Fully Loaded Patch Panel as per Tender Specification.(for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate).	10	Nos
4	Supply, Installation, Testing and Commissioning of 24 AWG Multi-strands CAT6A Patch Cords as per the Tender Specification.(for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gate)	160	Nos
5	Supply, Installation,Testing and Commissioning of 1000BASE-LX/LH SFP,(10G) compatible with the IEEE 802.3z 1000BASE-LX standard, operates on standard single-mode fiber-optic link.	40	Nos
6	SITC of 12 Port LOADED LIU with LC Coupler & LC Pigtail – 1 Mtr	40	Nos
7	SITC of LC-LC-DX-Giga Fibre Patch Cords	480	Nos
8	SITC of Armoured Single mode 12 core Fibre optic cable, Low Smoke outer Sheath , with Required Junction Boxes,Connectors and jointing accessories whereever required with required terminations as required with Cable tie`s & Tags.	5500	Mtrs
9	SITC of Armoured Single mode 12 core Fibre optic cable, Low Smoke outer Sheath , with Required Junction Boxes,Connectors and jointing accessories whereever required with required terminations as required with Cable tie`s & Tags.	4500	Mtrs
10	SITC of 32 mm dia (OD-33.40 mm & ID-32.3 mm nominal) HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench, suitable for operation at site conditions, complete as required.	5500	Mtrs

11	SITC of 33 mm dia (OD-33.40 mm & ID-32.3 mm nominal) HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench, suitable for operation at site conditions, complete as required.	4500	Mtrs
12	Supply, Installation, Testing and Commissioning of 6U Wall Mount Server Rack with double section Cabinet along with Power Manager and FAN. (for Asha Nivas, Shanthi Sadan, KS,PS,JS,RRS,RRU,PTC and Security Gates)	10	Nos
13	Supply & istallation of RCC hume pipe 200 mm Dia along with collars jointing of pipes with cement, consolidating for road crossing all as per the instructions of EIC.	200	Mtrs
14	Excavation and back filling of all kind of soil , THROUGH JCB OR MANUAL All cables to be laid in ground burial format through HDPE pipes. For laying to HDPE pipes use JCB or manual digging for all types of soil, ground, roads, pavers etc. Direct burial of cables are not allowed. Scope covers:1)Excavation of ground up to a depth such that the top of the cable shall be minimum 1.5 Mtr * 500 mm below the finished ground level.2)Supply, Laying and Pulling of HDPE pipes in Horizontal Trenches Size of pipe shall be appropriate to cables but not less than 32 mm internal dia.3)Back filling and compacting of the excavated trenches and removal of excess earth from the site.4)Supply, Fixing, Painting & Sign writing of Route marker and Joint Indicators5)Supply of cable & HDPE pipes is not be considered in the cost. Supply and fixing of 6)Pulling of cables through pipes and ducts shall be part of scope7)To prepare shop drawing and to take approval of consultant & client at each stage.8)To prepare & submit as-built drawing and handing over document to end user. To repair the road as existing after completion of excavation and backfilling work	800	Mtrs
15	Road cutting and back filling. road crosing , concreat roads, hard rocks. depth up to 1.5mts x 500 mm (width) Any road crossing to be finished as actual with bituminus	150	Mtrs
16	All Optical Fiber Splazing with other accessories at every juncture	1	LS

17	Supply, Installation, Testing and commissiong of 10KVA, 3Phase Input / 3phase output Monolithic Online Double Conversion UPS System. Required Ah SMF Batteries of approved make suitable for 10 KVA Modular UPS frame to feed 10 kVA load with minimum 8 Hours backup. Vendor to consider 15 to 20 mtrs of cable length from UPS to Battery.The type of Cable shall be Uni-nyvin and required battery caps. Cost including MS base frame. MS racks for housing batteries suitable for 10KVA UPS frame, including battery circuit , battery breaker ,input output MCCB of required ratings , earthing pit for UPS (02 Nos) , copper earthing for all equipments.	1	Nos
18	Supply, Installation, Testing and commissiong of 4KVA, 1Phase Input / 1phase output Monolithic Online Double Conversion UPS System. Required Ah SMF of approved make suitable for 4 KVA Modular UPS frame to feed 4 kVA load with minimum 8 Hours backup. Vendor to consider 15 to 20 mtrs of cable length from UPS to Battery.The type of Cable shall be Uni-nyvin and required battery caps. Cost including MS base frame.MS racks for housing batteries suitable for 4KVA UPS frame, including battery circuit breaker. battery breaker ,input output MCCB of required ratings , earthing pit for UPS (02 Nos) , copper earthing for all equipments.	1	Nos
19	Supply and laying of 3Core x 2.5 Sqmm Copper FRLS XLPE insulated armoured Cable. & Termination	1500	Mtrs
20	a. 32A DP 10KA MCB type Isolator D Curve including enclosure	4	Nos
21	b. 63A TPN 25KA MCCB type Isolator including enclosure	4	Nos
22	Neworking Components at Cameras Side		
23	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 16-Port 10/100/1000T 802.3at PoE Ethernet Switching ports with power budget. Should not exceed more than 12 Cameras. as per the technical specifications	8	Nos
24	Supply, Installation, Testing and Commissioning of Supply, Installation, Testing & Commissioning PoE switch 24-Port 10/100/1000T 802.3at PoE Ethernet Switching ports with power budget. Should not exceed more than 20 Cameras. as per the technical specifications	2	Nos
25	Supply, Installation, Testing and Commissioning of 16 Port Fully Loaded Patch Panel as per Tender Specification,	8	Nos
26	Supply, Installation, Testing and Commissioning of 24 Port Fully Loaded Patch Panel as per Tender Specification,	2	Nos
27	Supply, Installation, Testing and Commissioning of 24 AWG Multi-strands CAT6A 1 Meter Patch Cords as per the Tender Specification	140	Nos

28	Supply, Installation, Testing and Commissioning of 6U Wall Mount Server Rack with double section Cabinet along with Power Manager and FAN Supply Installation testing and commissioning of Supply & installation of 24U Closed double section Server Rack with complete accessories & testing :SITC of IT rack -24U Wall mounted rack 24U(double section) with acrylic glass door with the accessories -[Two Fan position tray with two 90 CFM fans(AC 230V),3 Horizontal cable manager- 3nos, AC power panel strip with 5 X 5 AMP /15Amp sockets ,fuse and on/off switch, 1 packet mounting hardware.	10	Nos
29	Supply, Installation, Testing and Commissioining of UTP Unshielded twisted pair CAT 6A FRLS Unarmoured cable with min 23 AWG solid bare copper core, with FRPVC Sheath (Fire retardant PVC Compound), supporting 10 / 100/1000 Ethernet, 155 Mbps ATM, 1000 Mbps IEEE 802.3ab Ethernet,	6250	Mtrs
30	Supply, Surface & Concealed laying on the walls, partitions etc., of 1.5 mm thick FRLS 25 mm PVC Conduits with all mounting saddles, spacers, screws with the required junction boxes, and cables glands as per client requirement	5300	Mtrs
31	Termination Accessories for CAT6A Cables	150	Nos
32	Cameras The CCTV equipment must not support GB/T 28181 protocol.		
33	Supply, Installation, Testing and Commissioning of 2MP IP Dome POE, 3.6mm - 10mm lens Camera, minimum 1/2.9” Progressive scan CMOS Maximum Resolution 1920x1080 (2MP), ONVIF supported, with true WDR, 30m IR, H.264, H.265 and MJPEG/ MPEG4 encoding support, 3 streams with capability to set independent FPS & compression selection for each stream, 0.07 lux Color ; 0.2 lux Color ,Video analytics of motion detection & camera tampering, IP 67 & IK 10 protection, with provision to connect upto 256GB SD card, UL listed & CE certifiied, mounting boxes, glands, back plates, required OEM Surface/ Ceiling/ pipe/ corner/ parapet/ pendant with wall mount bracket/In Ceiling, etc.	121	Nos
34	Supply, Installation, Testing and Commissioning of 5MP IP Bullet POE, 3-10mm Varifocal lens Camera, minimum 1/3" to 1/2.8" progressive scan CMOS sensor, ONVIF supported, with true WDR, 30m IR, H.264, H.265 and MJPEG/ MPEG4 encoding support, 4 streams with capability to set independent FPS & compression selection for each stream, sensitivity of 0.3 Lux or better with IR Off for colour and 0.0 Lux with IR ON for B/W, edge video analytics of motion detection & camera tampering, IP 67 & IK 10 protection, with provision to connect upto 1TB SD card, UL listed & CE certifiied, mounting boxes, glands, back plates, required OEM Surface/ Ceiling/ pipe/ corner/ parapet/ pendant with wall mount bracket/In Ceiling, etc.	4	Nos

35	SITC of 4 X 4 Back Box for Cameras IP 67 heavy duty type	130	Nos
36	Supply, Installation of 256 GB SD Cards for Cameras	130	Nos
37	Servers, Storages and VMS		
38	Supply, installation, testing & commissioning of Server as per following specifications: Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each Internal Controllers: PERC H330, H730P, H740P, HBA330 External Controllers: H840, 12 Gbps SAS HBA Software RAID:S140 Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module1 48 DDR4 DIMM slots, Supports RDIMM /LRDIMM, up to 2933MT/s, 6TB max Up to 12 NVDIMM, 384GB Max Up to 24 Intel® Optane™ DC persistent memory DCPMM, max 12.28TB, (15.36TB max with DCPMM and LDRIMM) Front drive bays: Up to 24 x 2.5" SAS/SATA (HDD/SSD) with up to 12 NVMe PCIe SSD, max 184.32TB Platinum 1100W, 1100W 380VDC, 1600W, 2000W, 2400W Gold 1100W-48VDC Windows Server 2019 or better, Antivirus Softwares. suitable to handle upto 2000 cameras. If the Vendor System requires more than what is specified above, The vendor to quote for the same and explain the same in spearate Note.	1	Nos

39	Supply, installation, testing & commissioning of Server as per following specifications: Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each Internal Controllers: PERC H330, H730P, H740P, HBA330 External Controllers: H840, 12 Gbps SAS HBA Software RAID:S140 Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module1 48 DDR4 DIMM slots, Supports RDIMM /LRDIMM, up to 2933MT/s, 6TB max Up to 12 NVDIMM, 384GB Max Up to 24 Intel® Optane™ DC persistent memory DCPMM, max 12.28TB, (15.36TB max with DCPMM and LDRIMM) Front drive bays: Up to 24 x 2.5" SAS/SATA (HDD/SSD) with up to 12 NVMe PCIe SSD, max 184.32TB Platinum 1100W, 1100W 380VDC, 1600W, 2000W, 2400W Gold 1100W-48VDC Windows Server 2019 or better, Antivirus Softwares. suitable to handle upto 2000 cameras. If the Vendor System requires more than what is specified above, The vendor to quote for the same and explain the same in spearate Note.	1	Nos
40	Supply, Installation, Testing, and Commissioning of storage (SAN) Windows Server, Linux, Oracle Solaris, AIX, HP-UX, macOS, VMware, ESX , NVMe/TCP, NVMe/FC, FC, iSCSI, 5U with 84 SSD / HDD slots , 25GbE ports (10GbE autoranging), With 4 X 2 (8 Nos of SFP Modules). To be Conencted directly in OFC.	2	Nos
41	Supply, Installation, Testing, and Commissioning of 12 TB Enterprises Hard Disk for SAN for 475 Cameras for 45 days of Backup.	20	Nos
42	Enterprise Edition Base license for Cameras (Asha Niwas & Santhi Sadhan + Existing 350 cameras)	475	Per Cam
43	Enterprise Edition Base Failover License for Cameras (Asha Niwas & Santhi Sadhan + Existing 350 cameras)	475	Per Cam

44	Workstation/PC for VMS software CPU: Intel Core i5 11700 or better Memory 16GB DDR4 2133 Dual Channel,512 GB SSD Hard drive GPU card: NVIDIA with 2x8 GB Graphics RAM Operating System: Microsoft Windows 10 Professional and Anti Virus. With 21" LCD Spot monitor. 1 No of Client PC for Connecting with Server and Video Wall at Asha Nivas and Security Officer Room	2	Nos
45	Supply, Installation, Testing and Commissioning of 72" LED TV (2K Resolution) with following minimum specifications: - of 72" LED TV 24 x 7 operation monitor, - with aspect ratio of 16:9, - resolution of full HD or better, - brightness of 450 cd/m2 or better, - Contrast Ratio (Native): 2400:1 without IPS/ 1100:1 along with IPS, viewing angle of 178 degree, - suitable for single phase AC supply 180-230 V, 50 Hz, - VGA/ HDMI/ DVI-D/ DP ports, USB Port and with table top as well as wall mount.1 No of Client PC for Connecting with Server and CRI 2nd floor server room and Security Officer Room	2	Nos
46	High-Speed HDMI v2.0 Cable with Ethernet, 18 GBPS Transmission Speed, Supports 3D/4K@60Hz Ultra HD Resolution, 10 Meters	2	Nos
47	Video wall display 2x2 with controller and accessories for Asha Nivas	1	Set
48	Supply, Installation, Testing and Commissioning of 2 mm thick CRCA Sheet Powder Coated 42U rack of suitable height as required with cable manager, power strip, lockable caster wheels to house all the Server, NAS & SAN with TCPIP interface & with cooling fans with properly ventilated louvers and openable, lockable doors	2	Nos

NIT No : TMC/ACTREC/ENGG/ET-21/Centralized Surveillance System/2024
Name of the Work : SITC of central surveillance system at ACTREC campus

Bid Security Declaration (To be executed on letter head of bidder)

(Ref ITB-clause 9.2)
Note: Submit as Form 7 as part of Technical bid, a Bid Securing Declaration In lieu of in the following format.

Bid Securing Declaration

(on Company Letter-head)
Bidder's Name _____

[Address and Contact Details]

Bidder's Reference No. _____ Date…….

To
Officer Incharge, Engineering Services
ACTREC-TMC
Ref: Tender Document No.

Sir/ Madam
We, the undersigned, solemnly declare that:
We understand that according to the conditions of this Tender Document, the bid must be supported by a Bid Securing Declaration in lieu of Bid Security.
We unconditionally accept the conditions of this Bid Securing Declaration. We understand we shall stand automatically suspended from being eligible for bidding in any tender in ACTREC-TMC for 2 years from the date of opening of this bid and Earnest money deposit will be forfeited, if we breach our obligation(s) under the tender conditions if we:

withdraw/ amend/ impair/ derogate, in any respect, from our bid, within the bid validity; or being notified within the bid validity of the acceptance of our bid by the ACTREC:
(a) refused to or failed to produce the original documents for scrutiny or the required Performance Security within the stipulated time under the conditions of the Tender Document.
(b)Fail or refuse to sign the contract.
We know that this bid-Securing Declaration shall expire if the contract is not awarded to us, upon:
1) receipt by us of your notification
(a)of cancellation of the entire tender process or rejection of all bids or
(b)of the name of the successful bidder or
2)Forty-five days after the expiration of bid validity any extension to it.

(Signature with date)
……..
(Name and designation)
Duly authorized to sign bid for and on behalf of……..

[name & address of Bidder and seal of company]
Dated on …….. day of …….. [insert date of signing]
Place…….. [insert place of signing]
DA:……

Annexure Q

To be printed & executed on Letter head of the bidder

To,
The Director, ACTREC.
Tata Memorial Centre.

Dear Sir,

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Yours faithfully
Bidder
Sign and stamp

TECHNICAL SPECIFICATION

FOR

DIGITAL VIDEO SURVEILLANCE SYSTEM (CCTV)

Contents

1. Technical Specifications for Security Systems

General Instructions

1.1 Scope

The scope of work under for this Tender shall include design, supply, installation, testing, commissioning, training & handing over of the Security Systems.

The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment, hardware, software, relevant spares, interface components, , etc., appliances and necessary labour to commission the said system, complete with all the required components strictly as per the enclosed tender specifications, design details. The scope also include the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details but are required for successful commissioning of the project.

The general design intent and the scope of work to be carried out is illustrated in Technical Specifications and Bill of Quantities. The vendor shall execute the project as per the terms & condition set out in the tender documents and in conformity with the specifications laid down. The contractor shall furnish all labour, materials and equipment, transportation and incidentals necessary for supply, installation, testing and commissioning of the complete Integrated Building Management System as described in the tender document. This also includes any material, equipment, appliances and incidental work not specifically mentioned herein or noted on the Drawings/Documents as being furnished (or installed), but which are necessary and customary to complete the installation.

All works in connection with completion of the system shall be in scope of the successful Security systems vendor. The tenderer shall take into its scope, price for all works and approvals in connection with successful installation & commissioning of the Security Systems. Where the successful vendor proposes to use an item of equipment, other than that specified in the BOQ/Tech Specs or detailed on the drawings, which requires any re-design of any part of the mechanical, electrical or architectural layouts; all such re-design, and all new drawings and detailing required thereof, shall be prepared by the vendor at their own expense and gotten approved by the Architect / Consultant / Client's Site representative

The successful vendor as part of the project shall also include in their cost & scope, the preparation & submission of all system schematic drawings, shop drawings produced using latest edition of Auto CAD and drafting package and graphic screen shots for all systems. Allowance shall be made for any necessary site modifications in drawings & graphics to incorporate any revised locations, presentation of dynamic information and Architect / Consultants / Client's site representatives comments.

THE QUANTITIES INDICATED IN THE BOQ ARE TENTATIVE. THE QUANTITITES MAY VARY BASED ON THE FINAL APPROVED DESIGN BY THE CLIENT.

CLIENT HAS THE RIGHT TO SPLIT THE REQUIREMENT & PLACE ORDER AS INDEPENDENT SYSTEMS TO MORE THAN ONE VENDOR.

1.2 Approved Makes

The Vendor Shall Quote Only From The List Of Approved Makes.

The Systems that are proposed for this project are:

- Full HD 2MP Fixed Dome IP POE cameras for indoor areas.
- Full HD 5MP Outdoor Bullet cameras for the building Entry/ Exit Parking areas and perimeter surveillance.
- ANPR Cameras
- PTZ cameras for perimeter surveillance along with fixed cameras
- Network Recording Servers
- Network Attached Storages
- Client PC with Professional monitors in the Security Room.

THE VENDOR SHALL MANDATORILY SUBMIT THE FOLLOWING IN THEIR TECH BID.

- Point By Point Compliance Statement to the complete technical specification
- Catalog, Data Sheet, Technical Specifications, and Approval Certifications **for each item quoted.**
- List of similar system jobs executed with client name, address, contact person & telephone Numbers.
- Job completion & performance certificates for similar integrated systems executed.
- PC / Server Configuration required with the Hard disc calculation

1.3 Execution

The work shall commence only after the approvals of the shop drawings and the successful shall strictly follow the approved drawings while execution. Any essential variations required at site shall be carried thro after the prior approval of the Consultant / Client / Project Manager. The required No of sets of drawing & documents shall be provided as per client /consultant's requirement with approved changes. For project execution, the successful Vendor shall employ at site only competent Engineers, technicians & skilled workers. A Competent Project Manager shall be assigned at site all the time to co ordinate the entire project and should assisted by competent project engineers.

The installation of all the systems shall be confirming to the Standards & regulations of the relevant local codes applicable for the systems. The successful vendor shall also be responsible for obtaining any license, clearance and approvals that may be required from the local authorities for installation of above systems.

The successful vendor shall examine all architectural, structural, HVAC, plumbing, electrical and other services drawings before starting the work, and shall report to the Architect / Consultant / client's site representative any discrepancy and obtain clarification n. Any changes found essential to coordinate installation of this work with other services and trades, shall be made with prior approval of the PMC / Consultant / Client's site

The successful vendor in consultation with Consultant shall confirm adequacy of the size of the openings and clearances for proper installation of his equipment. The contractor shall locate all equipment which must be serviced, operated or maintained, in fully accessible positions. The exact location and size of all access panels, required for each concealed control equipment, valve or other devices, shall be finalized and got approved from Architect/Consultants well in advance of the site installation. The successful vendor shall agree to submit the following as part of the approval process.

1.4 Technical Submittals

1.g Successful vendor shall submit technical submittals & engineering documentation and get the same approved before supply & installation any component or equipment.

The following documents shall be submitted as a minimum but not limited to

- Finalized Bill of Quantities with make & model No
- Data Sheet & Technical document for every item in the BOQ
- Model Nos for each of the item chosen clearly highlighted in the data sheet
- Server / PC configuration required
- List of software with version details, where ever applicable
- Confirmation letter that all the software that would supplied are of original version. Contractor shall ensure that all the software that are used, shall carry a certificate from the supplier and shall be original software procured for this particular project.
- Scope clarity & interdependency document

- Power requirement & Data point requirement for each device

- Narrative description of operation for each system, enumerating and describing the function of each component. Include alarm and emergency sequences, and equipment interlocks.

- All other documents as required by client & consultants

Where documents & engineering submittals are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.

Confirmation on availability of Local & Remote technical support for all components, products, firmware, software etc., offered for this project for a period of at least 10 years from the date of expiry of the system warranty (Warranty period starts from the date of commissioning).

Confirmation from the respective OEMs that the product, software, firmware and all the components offered by OEM & quoted by the vendor is NOT proprietary and the said system / components/ software / firmware are available for service, upgrade, addition & modification support through OEM approved other system integrators apart from the vendor quoting for this project.

The vendor shall mandatorily submit along with the bid, on their letter head, confirming the following:

Confirmation on availability of service support for all components, products, firmware, software etc., offered for this project for a period of at least 10 years from the date of expiry of the system warranty (Warranty period starts from the date of commissioning).

1.5 Shop Drawings

Successful vendor shall submit shop drawings and the get the same approved before supply & installation. All shop drawings shall be prepared only on approved original version of Auto CAD software. The drawings prepared out of educational versions shall be rejected. All drawings shall come with proper Rev Nos and shall strictly comply to the nomenclature followed by architects. **All hard copies of the drawings shall be Min A1 size. If required, the drawings shall also be submitted in A0 size**.

All the shop drawings shall be prepared on Auto CAD versions compatible with the kind of system being followed by the Architect. After the award of the contract & with in the agree period, the vendor shall furnish, for the approval of the Client / Project Manager / Consultant the required sets of detailed shop drawings. The following drawings shall be submitted as minimum but not limited to

- System Schematics
- Equipment layouts in the other services coordinated layouts with ceiling clearly levels marked for the route taken for trays etc., so that the same does NOT foul with other services.
- Ceiling sections indicating the level of tray routes, support details etc., Viz a Viz other services to be submitted where ever required
- Typical Tray installation drawing along with all support details (especially for high ceiling requirements) for each size of Tray
- Cable Tray & Cabling layouts for each floors / block with cable sizes and estimated quantity for each size
- Typical component installation drawings
- Camera, Device mounting details, method statements & connection details to components etc., & third party equipment
- All other drawings as required by client & consultants

These drawings shall contain details of construction, size, arrangement, operating clearances, of all items of equipment, also the details of all related items of work by other contractors. Each shop drawing shall contain tabulation of all measurable items of equipment/cables/ materials/works to arrive at a variation-in-quantity statement at the completion of all shop drawings. The commented drawings shall be corrected, modified as per comments & shall be submitted to consultants, as many times as required, till the drawings are approved for execution.

No material or equipment may be delivered or installed at the job site until the submittals/ drawings are approved for the particular material/equipment installation.

Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.

The successful vendor shall submit the following documents in No of sets as defined by client/PMC as a part of their handing over the system to client.

- Work Order
- Design concept & design sheet
- System block diagram
- Equipment lay out drawings
- As built drawing
- Invoice & Delivery Challan copies
- Full set of operation & maintenance manual for all components
- Report copy of the tests conducted while handing over
- CDs containing all the above documents.

1.6 Execution Competence

The systems shall be installed & commissioned by competent Engineers, technicians & contract workers and shall be installed as per the approved installation methods given by the manufacturer/ supplier of the control equipment.

The successful vendor shall submit a list of Engineers/ technicians trained by the manufacturer/ supplier of the system prior to commencement of work. The complete installation shall be in strict accordance with the national and local electrical codes.

The successful vendor shall submit list of OEM Trained engineers for installation & commissioning along with the training certificates.

1.7 Conduits & Cabling

Conduits & Cables shall be laid by skilled and experienced workmen. Great care shall be taken while laying cables to avoid kinks. At all changes in directions (vertical & horizontal planes) the cables shall be bent smooth with a radius as recommended by the manufacturers. No joints shall be allowed between two points. The sleeve at joints shall be shaved off like a pencil and shall not be cut square to avoid cutting of conductors. Any opening / chasing in the wall / ceiling required to be made for the cabling and installation of equipment shall be in the scope of the vendor and such opening / chasing shall be made good by the successful vendor at no extra cost

The system of cabling shall consist of PVC insulated copper conductor cables in metallic conduits, armoured cables and shall be laid concealed or surface mounted or on tray as required. The successful vendor shall prior to laying trays, cables & conduits, shall carefully examine the working drawings prepared by them and approved by the Consultant indicating the layout, satisfy themselves about the sufficiency of number and sizes of conduits, trays, location of junction boxes, sizes and other relevant details. Any discrepancy found in the drawings shall be brought to the notice of the Consultant / PMC. Any modifications suggested by the vendor shall be gotten approved before the actual laying of conduits is commenced.

The armoured cables shall be fixed by means of heavy gauge GI saddles with GI solid spacers secured at intervals not more than 300 mm(when laid on walls), on either side of fitting, bends. etc., The clamps, saddle & spacers used shall be correctly fit the cable size. GI tags shall be installed in regular intervals for easy cable identification. At bends, only S or C type bends are allowed and not L type bends.

The cables when laid on tray shall be laid in straight line, tied neatly to the tray using GI cable tags with GI identification tags at regular intervals. The tray shall not be choked with cables and each cable shall be easily accessible for replacement, if required in future. Atleast 20% space shall be available in each tray for future cable expansion.

In laying of conduits it is important that not more than two right angle bends are provided for each circuit as far as possible. No junction box shall be provided in the entire length of conduit run for drawing of cables.

Conduits run on surfaces shall be supported on galvanised steel 6 mm thick saddles & clamps which in turn are properly screwed to the wall or ceiling. Saddles shall be at intervals of not more than 750 mm. Fixing screws shall be with round or cheese head and of cadmium plated brass. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using fabricated galvanised steel junction/pull through boxes for better appearances. No cross-over of conduits shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance. Conduits embedded into the walls shall be fixed by means of staples at not more than 500 mm intervals. Chases in the walls shall be neatly made and refilled after laying the conduit and brought to the finish of the wall but final finish will be done by the building contractor.

Conduits buried in concrete structure shall be put in position and securely fastened to the reinforcement and got approved by the Engineer, before the concrete is poured. Proper care shall be taken to ensure that the conduits are neither dislocated nor choked at the time of pouring the concrete. Suitable galvanised steel fish wires of not less than 0.63 mm dia shall be drawn in all conduits before they are embedded. Where conduit passes through expansion joints in the building, adequate expansion fittings shall be used to take care of any relative movement.

Conduits and Accessories shall be of 16 gauge upto 32 mm and 14 gauge above 32 mm dia and shall conform to relevant Indian Standards. Conduit shall be screwed type GI or MS as specified in BOQ. Joints between

conduits and accessories shall be securely made, to ensure earth continuity. All conduit accessories shall be threaded type only. Only approved make of conduits and accessories shall be used.

Conduits shall be delivered to the site of construction in original bundles and each length of conduit shall bear the label of the manufacturer.

All jointing shall be subject to the approval of the Services Consultant / PMC. The threads and sockets shall be free from grease and oil, Connections between screwed conduit and GI boxes shall be by means of hexagon check nut, fixed outside and inside bush from inside the box. The joints in conduits shall be free of burrs to avoid damage to insulation of conductors while pulling them through the conduits.

Flexible conduits shall be made of heavy gauge MS strip galvanized with PVC sheathing after making the spiral. Both edges of the strip to have interlocking to avoid opening up. Where necessary, bends or diversions may be achieved by means of bends and / or circular cast iron inspection boxes with adequate and suitable inlet and outlet screwed joints. In case of recessed system each junction box shall be provided with a cover properly secured and flush with the finished wall surface. No bends shall have radius less than 7.5 cms or three times the outside diameter of the conduits.

All conduits, shall be installed so as to avoid steam and hot water pipes. After the conduits, junction boxes, outlet boxes and switch boxes are installed in position, their outlets shall be properly plugged or covered so that water, mortar, insects or another foreign matter does not enter into the conduit system.

Surface conduits shall be fixed by means of heavy gauge GI saddles, clamps & solid GI spacers secured at intervals not more than 750 mm, but on either side of couplers or bends or similar fitting, saddles, clamps & solid GI spacers shall be fixed at a distance of 300 mm from centre of each fitting.

Recessed conduiting shall be done by making chase in the masonry by chase cutter, the conduit shall be fixed in the chase by means of GI hooks not more than 600 mm apart. After fixing of conduit the chase shall be filled with cement mortar after fixing of chicken mesh and brought to the original finish level of the surface.

GI tags shall be installed in regular intervals for easy conduit identification. The conduitsy shall not be choked with cables and each cable shall be easily accessible for replacement, if required in future. Atleast 20% space shall be available in each conduit for future cable expansion.

Suitable size inspection boxes of cast iron shall have smooth external and internal finish to facilitate removal and replacement of wires, where required. Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. Inspection boxes shall be spaced at not more than 12 meters apart or two 90 degree solid bends or equal. All junction and pull boxes shall be covered by 6mm clear plate truly cut and fixed with cadmium plated brass screws. These junction boxes shall form part of point wiring or conduit wiring as the case may be including the cost of removing the cover for painting and refixing. No separate charges shall be allowed except where specially mentioned.

1.8 Cables

All cables (FRLS, Unarmoured, Armoured, Twisted Pair etc) shall be single / multi core multi-strand copper PVC insulated to IS : 694, ATC and shall be as specified and required in the schedule of work. The strands of cable shall not be cut to accommodate & connect the terminals. Terminals shall have sufficient cross sectional area to take in all the strands.

1.9 GI Poles

The Camera GI poles height shall be of at least 4 Mtrs / 6 Mtrs for the cameras as per the layout & in the main entry / exit cameras to view the vehicle License plates. The height of the poles shall be arrived at based on the site requirements.

The pole shall be hot dipped galvanized to withstand outdoor conditions. In addition, the pole shall be painted with 2 coats of outdoor primer + 2 coats of outdoor quality colour paint. The colour and paint quality shall be pre-approved by client / architects

The vendor shall quote for the pole including the required civil works for mounting the same. The pole shall be buried at least 1mtr below the ground. The necessary concrete support shall be provided below & above the ground. The pole shall be tapered while it going up & shall have a necessary provision to mount PTZ/Fixed cameras. Provision shall be made in civil works & also on the pole to allow cables to enter inside the pole for connecting the camera. Vendor shall ensure that no cables are visible outside. Also specific stag wire support to be provided at least on 3 sides around the pole, to reduce the shaking of pole due to high wind condition. The vendor shall also consider the cost of wire support while quoting.

1.10 Training

The successful contractor shall fully train Owners' personnel in operation and routine maintenance of all the systems installed by the vendor. Such training shall be imparted during installation of the plant / system and also, after commissioning. The period of training after commissioning shall be not less than 15 days of min 8 hrs sessions per day.

Training sessions shall be provided by the security vendor to the client personnel free of cost, which shall be suitable to the type of system installed. The first training session shall be imparted in the site. The training shall be imparted to security operators, Maintenance Supervisors, Managers and all other personnel as assigned by client

The training session shall be started at site partly during system installation and partly after system completion/testing /commissioning. The training shall be imparted as many time as required with in the stipulated training period

These sessions shall include, but not be limited to:

- Written training material
- Class room sessions
- Hands-on exercise
- Test

The vendor shall furnish the services of competent instructors who will give instruction in the adjustment, operation and maintenance, including pertinent safety requirements, of the equipment and system specified. The training shall be oriented toward the system installed rather than being a general training course. Each instructor shall be thoroughly familiar with all aspects of the subject matter they are to teach. All equipment and material required for classroom training shall be provided by the vendor.

The training topics shall also include the following but not be limited to:

- Installed system Configuration, architecture, components
- Operation Logics for each utility equipment
- Operation of Software, Computer and Peripherals
- Supervisory Level Operator Commands
- System Programming
- Data Base Generation
- Report Generation
- Operator Control Functions
- Graphics Generation
- Troubleshooting procedures
- Preventive Maintenance procedures
- Proper use of service kit.
- Topics requested by Client

1.11 Warranty

Warranty shall be as per the commercial section attached elsewhere. The Contractor shall guarantee trouble-free performance of the supplied systems and work during the warranty period. In case of any defect or non-performance of the system or a component during this guarantee period, the same shall be replaced/ rectified free of cost.

Any such replacement/repair need to be carried out within 72 hours of reporting the issue to the Contractor. In this regard, Contractor is advised to consider periodic maintenance checks by the respective OEM/ Representative, as required in order to ensure 100% availability/trouble free performance.

During warranty period 24 months, Contractor shall supply all spares for various CCTV System supplied by them. Contractor shall provide warranty maintenance services and supply of spares for maintaining an uptime of 99.995% for each system.

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1.12 Responsibility For Integrations & Independency

The successful Vendor shall be fully responsible for coordination with the third-party utilities such as Existing cameras Vendor, Interior Vendor etc., to meet the tender requirement etc., The Vendor shall directly coordinate with the respective utility vendor & ensure that the integration between the utility & safety systems is complete in all respects. Any deviation or non-co-operation or any other co-ordination issues will be immediately brought to the notice of the Client/ project manager to enable them to resolve the same. The vendor will be ultimately responsible for integration & completion of the project.

SITE SPECIFIC REQUIREMENTS

The Tender design intent is to deploy a Digital Video Surveillance system to ensure movement of vehicle and humans are as per regimented Security Procedures. Cameras shall be deployed at the Security Block & External premises at the following areas/Checkpoints:

- CANCER RESEARCH BUILDING (KS)
- CANCER RESEARCH CENTER (PS)
- WARD BLOCK (JS)
- HEMATOLYMPHOID BLOCK (RRS)
- HADRON BUILDING (PTC)
- RADIOLOGICAL RESEARCH UNIT (RRU)
- RETREAT GUEST HOUSE
- CENTER FOR CANCER EPIDEMIOLOGIST (CCE)
- ARCHIEVE BUILDING
- ASHA NIWAS
- VASUNDHARA GRUHA (Santhi Sadhan)
- SHANTILAL SHANGHVI PEDIATRIC HEMATOLYMPHOID CANCER CENTER

Following Security equipment shall be deployed at the check points as mentioned below:

a. Digital Surveillance System

Design, engineering, manufacture, procurement of materials and bought out items/components, assembly at shop, system engineering, internal testing, integration, inspection, factory testing and acceptance at manufacturer's works, packing, delivery of Physical Security System including supply of commissioning spares, special tools and tackles, consumables, erection materials, documentation, warranty, and Training for the complete ,Unloading, handling at site, transportation to site store, and from site store to work site, storage at site, assembly at site, completion of erection, installation of all components, cable laying including supply and installation of all cables, cable trays, cable glanding/ terminations, the configuration of the supplied system, loop checking, testing, pre-commissioning, site acceptance test, handing over to Client and other field work (as required) for the complete Physical Security System.

All items, as offered, shall be field proven and should have completed trouble-free satisfactory operation for a period of minimum 6 months on the bid due date in the similar application as specified in this specification. Items with proto-type design or items not meeting the proneness criteria specified above shall not be offer the contractor shall furnish supporting documents from OEM viz. P.O. copy, end user feedback approved specifications/ drawings etc. of Physical security system which is supplied by them in past for similar application.

Technical Specifications

FOR

Digital Video Surveillance system

2. Technical Specification for Digital Video Surveillance System

2.1 System requirements / description

The broad scope and requirements of the system are as follow

The scope of work covered in this specification shall include supply, installation, testing and commissioning of CCTV System along with all other accessories, for trouble free operation.

The scope of work under this head shall include design, supply, and installation of CCTV System. The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment's and appliances and labour necessary to commission the said system, complete Cameras, housings, power supplies, Digital Video Management Software etc. for interfacing with other systems. It shall also include laying of cabling necessary for installation of the system as indicated in the specification and Bill of Quantities. Any openings/chasing in the wall/ceiling required to be made for the installation shall be made good in appropriate manner.

The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment, hardware, software appliances and necessary labour to commission the said system, complete with all the required components strictly as per the enclosed tender specifications, design details. The scope also include the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details but are required for successful commissioning of the project.

The CCTV equipment must not support GB/T 28181 protocol.

2.2 IP Fixed Indoor day / Night Network Dome camera

Agency has to submit compliances for all specifications on separate sheet.

The network dome cameras shall be used for monitoring indoor areas over a local area network. It shall have the POE connectivity for connecting them to the POE switches .

Indoor Dome type, Wide angle camera 2MP For Indoor Dome type, Wide angle camera, the following specification shall apply:	
1	IP Fixed Dome Day/Night High Resolution 2MP Camera
2	1/3" Progressive/De-interlace CCD/CMOS Sensor
3	Wide dynamic range
4	Minimum Illumination: 0.5 lux
5	fixed lens 2.6/2.8/3/3.6mm, Auto Iris lens
6	Manual pan/tilt adjustment up to 350°/+-90°
7	Automatic Gain Control, BLC, White balance: On/Off
8	3D Noise reduction: ON/Off
9	Tamper Detection: On/Off
10	Compression: Dual stream, H.265
11	Resolution and Performance: 1920 x 1080@ 20-25FPS on 3 streams respectively at the same time
12	Bandwidth: 64Kbps to 6Mbps
13	Built-in Multi-zone motion detection
14	Testing of each cameras model Bandwidth on LAN / WAN network.
15	Minimum 3 streams per camera
15	Unicast, Multicast, RTP, TCP, UDP, HTTP, IGMP, ICMP, DHCP, DNS
16	10/100 Base-T Auto sensing, Half/Full Duplex (RJ45)

17	S/N Ratio: >50db
18	Built in Micro SD cared slot to support up to 32GB storage for local recording
19	At least one potential free Alarm IN and one Alarm out
20	Privacy masking zones
21	Power: 802.3af class 3 PoE
22	Indoor clear bubble surface mount enclosure.
23	Operating Temp: 0° C to 50° C
24	Humidity: 90% (Non-condensing)
25	UL, CE and FCC certified
26	ONVIF Compliance
27	IEEE802.1X & NDAA (NATIONAL DEFENCE AUTHORISATION ACT)
28	Housing Should be from the camera OEM only. Environment protection as per outdoor application IP67 or better and IK10 vandal proof and integrated with camera body.
29	Mounting Should be from the camera OEM only Ceiling or wall type.
30	Certification Specific model should be UL/ FCC/ CE, Open network video compliant with APIs and SDKs available without any additional charge.
31	Service facility OEM Service center Should be available in India
32	Vendor has to submit OEM Authorization Letter- Manufacturer Authorization Form (MAF)along with the Technical Specification.

2.3 IP Varifocal bullet day / Night Network camera

Bullet Type Camera in Outdoor type, the following specification shall apply:	
1	IP Varifocal lens Bullet Day/Night Very High Resolution (5MP) WDR Outdoor Camera
2	1/3" Progressive/De-interlace CCD/CMOS Sensor
3	Optical Wide dynamic range 100>dB
4	Minimum Illumination: Color 0.2 lux and B/W 0.5 lux
5	fixed lens 6mm / 8m, Auto Iris, D/N lens, Megapixel
6	IR sensitivity between 680 to 1100nm using IR cut filter
7	Manual pan/tilt adjustment up to 350°/+-90°
8	Automatic Gain Control, BLC, White balance: On/Off
9	3D Noise reduction: ON/Off
10	Tamper Detection: On/Off
11	Compression: Dual stream, H.265
12	Resolution: 2560 x 1920 @ 25FPS and up to 1280 x 1024 @ 12FPS on 3 streams respectively at the same time
13	Bandwidth: 64Kbps to 6Mbps
14	Built-in Multi-zone motion detection
15	Testing of each cameras model Bandwidth on LAN / WAN network.
15	Minimum 3 streams per camera.
16	Unicast, Multicast, RTP, TCP, UDP, HTTP, IGMP, ICMP, DHCP, DNS
17	10/100 Base-T Auto sensing, Half/Full Duplex (RJ45)
18	S/N Ratio: >50db
19	Built in Micro SD cared slot to support up to 32GB storage for local recording
20	At least one potential free Alarm IN and one Alarm out

21	Privacy masking zones
22	Power: 802.3af class 3 PoE
23	Operating Temp: 0° C to 50° C
24	Humidity: 90% (Non-condensing)
25	UL, CE and FCC certified
26	ONVIF Compliance
27	IEEE802.1X & NDAA (NATIONAL DEFENCE AUTHORISATION ACT) Security Protocol is must in all models. IEEE 802.1X Shall be applied and implemented to all cameras also Demonstration for this protocol shall be shown, all required server licenses or components shall be considered, no extra cost for this shall be provided.
28	Housing Should be from the camera OEM only. Environment protection as per outdoor application IP67 or better and IK10 vandal proof and integrated with camera body.
29	Mounting Should be from the camera OEM only Ceiling or wall type.
30	Certification Specific model should be UL/ FCC/ CE, Open network video compliant with APIs and SDKs available without any additional charge.
31	Service facility OEM Service center Should be available in India
32	Vendor has to submit OEM Authorization Letter- Manufacturer Authorization Form (MAF)along with the Technical Specification.

2.4 IP PTZ Dome POE Camera

The IP PTZ dome POE cameras shall be used for monitoring indoor / outdoor areas over a local area network. It shall have the POE/ POE+ connectivity for connecting them to the POE switches. The camera shall also come with the manufacturer's power supply unit apart from POE connectivity. The Power supply unit shall be used in case, the data switch location are more than 90 Mtrs to camera locations.

Sr. No.	Functionality / Description	Minimum Specifications
1	Pick-up device	1 / 2.8 inch XMOR CMOS sensor or better
2	Signal System	PAL
3	Active Pixels (No. of effective pixels)	2 Mega Pixels or better
4	Signal to noise ratio	50dB or better
5	Video Output (for analogue output)	1 Vp-P, BNC Type
6	Electronic Shutter Speed	Minimum 1/10,000 sec, Maximum 1sec
7	Gain Control	Auto
8	Exposure Control	Shutter Speed, Iris, AGC
9	White balance Mode	ATW, ATW pro, manual
10	Wide Dynamic Range	Yes , better than 130dB or better
11	Pan angle	360 degree, endless
12	Pan speed	300 degree / sec or better
13	Tilt angle	220 degree
14	Preset Pan Tilt speed	500 degree/ sec or better
15	Wide Dynamic Range	130db or better

Sr. No.	Functionality / Description	Minimum Specifications
15	Audio	Bi-Directional 2way, G.711, G.726, AAC
16	Voice Alert functionality	Required
17	Privacy Zone Masking	Required
18	Video Resolutions	1920×1080, 1680×1056, 1280×1024, 1440×912, 1280×960, 1376×768,1280×800, 1280×720, 1024×768, 1024×576, 800×600, 800×480, 768×576,720×576, 704×576, 720×480, 640×480, 640×368, 384×288, 320×240, 320×192
19	Compression format	H.264 & H.265 (High, Main & Base profile)/ JPEG
20	Streaming and Frame rate	Stream 1: 1920x1080 @20FPS, Stream 2: 1280x720 @20FPS, Stream 3: 640x80 @20FPS
21	Ethernet Interface	RJ-45
22	Web Server	Built in Web Server is required
23	Operating temperature	-5°C to +50°C (14°F to 122°F)
24	Storage temperature	-20°C to +60°C (-4°F to +140°F)
25	Lens type	Auto Focus Zoom Lens
26	Zoom Ratio	Optical 30x, Digital 12x
27	Focal length	4.3mm to 129mm
28	F-number	1.6 or better in wide angle
29	Horizontal viewing angle	63.7 degree to 2.3 degree
30	Protocols	IPv4, IPv6, TCP, UDP, ARP, ICMP, IGMP, HTTP, HTTPS, FTP (client/server), SMTP, DHCP,DNS, NTP, RTP/RTCP, RTSP, SNMP(MIB-2)
31	Unicast / Multicast	20 simultaneous clients / Unlimited at H.264
32	Authentication	IEEE 802.1X
33	Card Slots	SD / SDHC up to 64GB
34	I/O Port	At least 3 alarm input and 2 alarm output
35	External Microphone Input	Yes
36	Audio line output	Mini Jack
37	Minimum Illumination (at AGC ON and 30 IRE, 1/30sec, 30 FPS)	Color: 0.4lux or better, B/w: 0.03 lx
38	Image Settings	Voice Alert, Visibility Enhancement to improve picture quality under poor light condition, Wide Dynamic range of Min 130dB to ensure usable picture under strong backlight condition, 3D Dynamic Noise Reduction, Privacy Zone Masking, Auto Flip, Bi-directional audio transfer, FTP support, Day/ Night functionality
39	Presets	256 or better
40	Tours	5 or better
41	Power Requirement	AC24V, HPoE

Sr. No.	Functionality / Description	Minimum Specifications
42	Approvals	UL 2044, FCC, CE
43	ONVIF Conformance	Yes (ONVIF conformity certificate to be provided)
44	Outdoor Enclosure	Weather proof IP66 rated, IK10 Vandal/Impact Proof,
45	Accessories in enclosure	Pendant Mount; Thermostatically controlled heater
46	Edge Based analytics	Require following edge analytics. 1)Face detection. 2)Object left over. 3)Object removal. 4)Intrusion detection. 5) Passing / Trip wire. 6) Tamper alarm. 7) Intelligent Motion detection
47	Image stabilizer	Required.

2.5 ANPR (Automatic Number Plate Recognition Camera)

Features

The ANPR camera shall have starlight optical sensor and integrated IR illuminator which produces clear images in night environments and reduce light pollution.

The ANPR shall have the following minimum specification

IR illumination	:	50m Mtr
Resolution	:	2MP , 1920 x 1080
Lens	:	Motorized zoom lens
Automatic gain control	:	Yes
WDR	:	120 dB for various light conditions.
No of stream	:	1 image stream, 3 video streams. Up to 1080P@60fps live video streams.
Video Compression	:	Advanced H.265

Functions

The Built-in vehicle & license plate recognition algorithm shall recognize standard license plates of multiple countries. The system shall Supports capturing vehicle head only & support allowlist and blocklist configuration. The system shall support vehicle access control when connected to a barrier. The camera shall have Micro SD cards of up to 128GB. ANPR system shall support audio acquisition and intercom.

Network Adaptability

Network auto-adaptability shall ensure fluent live video in relatively bad network conditions such as packet loss. The network shall support SNMP. Supports UNP for NAT traversal between public and private networks. Supports integration by the third party via SDK or HTTP.

Network Security

Network shall support authorized user access by password. Weak password detection and account lock-up when failed login attempts shall reach the upper limit enhance password security. It shall Support HTTPS. RTSP authentication and prevents unauthorized video stream requests. IP address filtering shall prevent illegal access from untrusted IP addresses. Gateway ARP protection shall prevent MAC address spoofing.

Structure

The structure shall Support DC 12V, and PoE (802.3at) power supplies. Cast aluminum body shall provide excellent heat dissipation. Junction box for cabling shall be IP67, IK10 rated.

Camera	**Description**
Sensor	1/2.8” 2MP CMOS
Focal length	4.7 to 47mm, motorized zoom
Shutter	Auto/Manual, range: 1/25 to 1/100000 s
Minimum illumination	0.001lux (F1.6)
Image	Description
Image collection format	1080P@25 (default), 1080P@30, 1080P@50, 1080P@60
Resolution	Main stream: 1080P (default), 720P, D1 Sub stream: 720P (default), D1, 2CIF, CIF Third stream: D1 (default), 2CIF, CIF
Frame rate	60, 50, 30, 25 (default), 22, 20, 18, 16, 15, 12.5, 10, 8, 6, 5, 4, 3, 2, 1
Video compression	H.264 (default), H.265
ROI	Supports up to 8 regions
Video OSD	Supports 8 overlay areas and allows contents including date, time, date & time, zoom ratio, custom contents
Image OSD	Supports 8 overlay areas and allows contents including time, license plate number, device ID, camera ID, allowlist, image authentication ID, custom contents (3 items), location
Smart	Description
Application scenario	Vehicle speed ≤30km/h Supports simultaneous application to entry/exit scenes
Software:	
Supported OS	Linux/Windows
Type of Plates	Recognition for English fonts
Image Input	Still Image or Live Video Input
Sample Processing Time	100ms @ CPU 2.0 GHz, Colour images, 768x576 or 640x480 pixels (PAL/NTSC)

2.6 Video Management and Recording Software

2.6.1. Video Management Software (VMS):

General Requirement

The Video Management System (VMS) specified shall be an enterprise class server based IP video security solution that provides seamless management of digital video, audio and data across an IP network. The VMS shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. VMS shall offer centralized management of all devices, recording servers and users and must empower a flexible rule-based system driven by schedules and events.

- VMS shall be open to any video wall system integration.
- VMS shall have the possibility to integrate external Video Analytics systems from one or more vendors simultaneously.
- The Video Management System software shall include multicast and multi- streaming support.
- The VMS shall record and store a minimum of Forty five (45) days at 2 MP resolution at 25 FPS of video images from all cameras as well as the historical data of system activities.
- The VMS must be user friendly and shall be required only minimum training to allow an operator to perform his daily routine with minimum supervision.
- Software shall also provide the ability to monitor system status events. Systems alarms, switching functions, sequence events, keyboard actions, and video loss information.

System architecture

The VMS and Recording server shall be provided separately, each on a dedicated hardware server platform. The proposed hardware specification for the server must be sufficient to ensure stable operation. The system server shall complete with adequate disk storage to service the total system requirements and shall be of an industrial standard type, having proven record in similar applications. The VMS shall be of scalable server and client based architecture that allows full virtual matrix switching and control systems. MS Office shall be installed on Standard Servers and storage technologies, shall be a scalable client – server architecture built using well known windows operating systems. The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers). The Video Management System shall support a Versatile rule engine that makes it easy to automate different aspects of the system, including the control of cameras, system behavior and external devices, such as lights and doors, based on events or time schedules, eliminating the need for manual control with numerous options including support to time profiles.

The camera feature can be an integral part of camera or a part of camera server. The features shall be user configurable for each camera. It shall be possible to activate recordings automatically based on events generated by video analytics. These events shall also be logged and suitably alarmed on the monitors. The system administrator shall have rights to add/delete/configure users with rights. It shall be possible to view the rights of each user or the cameras which can be viewed / controlled by each user. It shall also be possible to add/delete cameras, configure cameras, assign priorities to users, configure alarm monitors etc. It shall also be possible to configure user groups with different rights and assign users to user groups. The system shall support unified log-in throughout the system and it shall be possible for any user to log-in from any location/client and access cameras/recordings and other features as permissible depending on his rights assigned to his log-in.

The Network CCTV Video Management System (VMS) shall be a software-based solution running on Physical or Virtual Server and communicating over Ethernet network using the TCP/IP network protocol. The proposed solution shall be based on the latest compatible Windows Server Operating System or any other platform. The VMS shall sustain full operation using CIF, 2CIF, VGA, 4CIF, 800 x 600 (0.5 m pixel) and Megapixel video resolution, 1920 x 1080 and up to 8 MP.

The VMS shall be able to support all cameras at the maximum frame rate and the maximum resolution. The VMS shall be based on the TCP/IP communication protocol between all IP cameras, camera Encoders, monitor Decoders, Network Video Management Software and Media Storage Servers

- The VMS shall also support the UDP/IP network protocol
- The VMS shall also support the Unicast & Multicast network & shall be able to switch from one to other.

The VMS storage system shall be based on advanced recording methods and shall be not be rely on the Windows Operating System to manage the storage.

The VMS shall provide the coactivity to an external storage system. The VMS shall support edge base analytics or server base intelligent video analytics like Motion detection, Line Crossing, Virtual fencing, Target counting, Face detection, Video blur detection etc. All storage redundancy and mirroring capabilities shall be done using hardware interface and shall be or not be rely on the Windows Operating System to perform these functions.

The VMS shall allow for specific cameras to be set at the most optimized recording technique, MPEG-4 / H 264 /H.265 baseline & H 264 high profile and should be available for live monitoring and recording signals. The system shall allow the recording, live monitoring, playback of archived video and data simultaneously. The VMS shall allow the user to view live video at 25 fps PAL while recording at a lower frame rate for more efficient video storage.

The VMS client application shall support multiple flat panel monitors to be connected to a single computer. The VMS client application shall allow each user with the ability to view 64 cameras on a single PC all at 25 fps PAL. The system shall maintain the capability to add additional minimum 2 numbers of flat panel monitors for other applications. he VMS shall provide the user with the ability to fully control the system using PC based keyboard or mouse.

The VMS shall offer a plug and play type hardware discovery service with the following functions:

- Automatically discover devices as they are attached to the defined network.
- The VMS shall provide a reporting utility for tracking but not limited to the following options. Video and images shall be stored with reports for documenting events.
- Alarms
- Incidents
- Operator or audit logs
- Service requests or configuration change logs

The VMS database shall be design as a distributed architecture and shall not introduce a single point of failure. The VMS shall be Server – Client architecture & shall be scalable for enterprise wide multi server architecture. The VMS shall consist of Digital Virtual Matrix, Incident Reports, Alarm Management, Health Monitoring system. The VMS Database Server shall maintain a catalog of settings for all the client's profiles, servers, encoders, decoders and IP cameras in the system.

The Server shall enable the client to dynamically create connections between Encoders and Decoders and view live or recorded video on the digital VGA/HDMI monitors (audio, video, serial ports and digital I/Os). The Server shall provide the client seamless operation of all Encoders and Decoders available in the system regardless of the actual connection to different archive servers. The Server shall detect signal or connection loss and have the capability to alert the systems administrator.

The Server shall receive all incoming events (motion detection and triggered digital input and relay output) in the system and take appropriate actions based on user-defined event/action relationships.

The Server shall create an audit trail of all events and user activities.

The Server shall perform dynamic bandwidth management.

The Server shall authenticate users and give access to the VMS Monitor Client application based on predefined user access rights. The VMS shall require no proprietary hardware for video and audio recording servers. The VMS shall not utilize any hardware or software multiplexer or time-division technology for video or audio recording and monitoring. VMS shall support AES 256 Bit encrypted communication between and serve and client. Also, all recorded media should be encrypted AES 256, this will protect the media in case a drive is remove from the NAS unit.

The VMS Shall support full duplex audio communication and transmission signals over the IP Digital Transmission Network. VMS should support multiple OEM cameras on standard ONVIF /protocol. The VMS shall provide alarm management module.

The alarm management shall be able to set any monitor or groups of monitors to automatically display cameras in response to alarm inputs. The alarm management shall be able to reset automatically or manually alarmed video. The alarm management shall allow for multiple modes of alarm handling capability, these modes to be programmed within the same system.

The VMS shall be based on a true open and Cloud ready architecture that shall allow the use of non-proprietary workstation and server hardware, non-proprietary network infrastructure and non-proprietary storage. The VMS application provider must support at least 50 + brands of Cameras and the list of integrations must be listed on the global web site of the application provider. The proposed VMS system shall be of a manufacturer with as minimum of five (5) years of experience and offerings in the IP network video software market, the letter stating the same should be submitted by the manufacturer. OEM for the offered cameras & software shall have a direct presence in India with sales and support facilities locally.

The VMS application must have capability to integrate via SDK/API with a full fetched Integrated Command & Control platform and capability to provide incident management features like Rule engine, SOP ‘s and Incident reports. The VMS should support integrations with 3rd party systems like FAS, BMS, SCADA etc. using open frameworks like OPC / Modbus / BACNET Plug-ins. All these integrations shall support high availability. The VMS shall integrate cameras using dedicated driver or using the industry standards ONVIF Profile S, Profile T and Profile G. The same must be listed on the ONVIF website.

The Security application shall offer a complete and scalable video surveillance solution which allows cameras to be added on a unit-by-unit basis. The database shall support more than 10000 cameras / IP end points in a single Hardware machine. The VMS video storage shall be capable of storing video for a period of 45 days available for online access. The Bidder shall budget for a minimum of the storage capacity as given in the Tender Document. The VMS Storage solution shall be as minimum set at RAID-5/RAID-6 configuration.

Storage system shall be of minimum RAID 5/RAID 6 configured Direct Attached Storage (DAS) / Storage Area Network (SAN) Systems / Internal storage system in N: N configuration. By Addition of additional Storage Space at a later date, the Client shall be able to expand the archival from 45 days to beyond, by adding additional hard disc to the existing storage server. The VMS shall have a capacity to switch and control all the current cameras. VMS Software should be expandable to unlimited cameras in future at only additional Camera Channel License costs without any recording server.

The system shall allow the recording, live monitoring, playback of archived video audio, and data simultaneously. The VMS shall provide file export tool for exporting the native video format with all video protections (e.g. watermark, encryption) and the ability to play this video on a standard computer. The native file format video player shall show the status of the video authentication as available with the original file format.

VMS should provide well defined SDK/API for integration development possibilities with third party ACS system without any additional charges for installation. Development of integration module shall be in the scope of ACS system OEM, whereas VMS vendor should provide the requisite SDK/API for the same. Cost of the same should be included in the offer. The VMS system should have direct interface with Access Control system or provide well defined SDK/API such that seamless integration between the 2 systems is available / possible to be developed for this project.

Any alarms such as:

- Invalid Card being presented
- Unauthorized card presented for access
- Mantrap Alarm
- Or any such user defined alarm should enable the Recording of the specific camera on the CCTV system at the instant of the Alarm and allow for these images to be stored / transmitted by Email.

VMS shall support auto lock of client after specified time with certain period of inactivity, which is customizable as per customer policy. The Application shall offer a plug and play type hardware discovery service with the following functionalities:

Automatically discover Video surveillance units as they are attached to the network.

Discover Surveillance units on different network segments, including the Internet, and across routers with or without network address translation (NAT) capabilities.

The Application shall have the capacity to configure the key frame interval (I-frame) in seconds or number of frames.

The Application shall allow for multiple recording schedules to be assigned to a single camera.

The Application shall support Direct Multicast from Camera. The application shall have the following options when protecting a video sequence: Until a specified date, for a specified number of days, indefinitely (until the protection is explicitly removed for evidence). The application shall support edge recording capabilities with ability to playback the video recorded at different speeds and ability to offload the video recorded on the application server on schedule, on event, or manually to store it on the recording server.

VMS should support (either natively or using 3rd party tools) brute force attacks against un-authorized login, thereby, de-activating the user for a pre-defined time period. The application management server should not have any limitation on the no of recording servers added on one single management / fail over server for this Project or tender. Any limitations must be clearly specified by the bidder. VMS shall support the parallel recording on primary and secondary control room, once Primary server of goes offline then videos which are parallelly recorded at secondary server shall be automatic sync to primary server without user intervention.

VMS Shall support the failover of recording servers, in case of primary recording server failure service should automatically shift to the assigned failover server. Dashboards:

The VMS shall support the ability to create dashboards either natively or using 3rd party tools:

Dashboard shall consist of a canvas with various widgets displayed on the canvas.

All widgets should offer the ability to specify location and size to the widget, a title to the widget, a background color to the widget, and the ability to refresh periodically the content of the widget.

Dashboard widget types shall be,

Image: provides the ability to display an image (JPG, PNG, GIF, BMP) on a dashboard.

Text: provides the ability to display a text on a dashboard. The text style shall be configurable, so font, size, color, and alignment can be specified by the user.

Tile: provides the ability to display any entity of the USP inside of a tile.

Web page: provides the ability to display a URL on a dashboard.

Entity Count: provides the ability to display the total number of a specific entity type like cameras, user online, no of alarms, in the VMS.

Trends: provides the ability to display the Alarms trends in Bar Charts / Line Charts / Donuts, in the VMS.

3rd Party: Provide widget level data of information from 3rd party systems using Industry standard open protocols like OPC UA, MQTT, LoRa-WAN & BACnet.

Search Option: System should support search-based analytics that uses Natural Language query to interact with its users to query camera status and Alarms.

Reports: provides the ability to display the results of any saved reports in the system. The results shall be displayed either by showing the total number of results in the report, a set of top results from the report, or a visual graph from the data returned by the report.

VMS shall have SQL Database info log like Event Count, Source Count, Video file count, Size on disk. VMS shall have provision to set notification for Disk space and Database usage goes set value. VMS shall support the backup of SQL database from VMS GUI console or SQL Studio. VMS client shall show on live stream about routing information like unicast, multicast or streaming from recording server. Bandwidth Control: It shall be possible to limit the bandwidth consumed by live and playback video from the Client to better control the bandwidth across multiple sites. The System shall be able to prioritize video streaming to the client based on user level.

There should not be any dependency on the end point MAC address for licensing for ease of operations. VMS shall support password management tool which randomly generate the password and apply the password on camera based on user trigger.

Software should be quoted with 5 years' maintenance such that all upgrades / updates to the software are provided at no additional cost to the customer. It is mandatory for the SI partner to upgrade the software with-in 03 months of latest software version release by OEM. VMS should support Dual sign in to log in to the system administrator and client – Log in shall be permitted when two authorized persons login. Any user can login first and second user will authenticate. There shall be no restriction irrespective of which user is login first or second. VMS should give alarms for un-authorized logins, in case of multiple failed logins. This feature can be achieved either natively or using 3rd party login tools & same need to consider in the overall bid.

Cyber Security Requirements:

The VMS shall support only secured media stream requests, unless explicitly configured otherwise. Secured media stream requests shall be secured with strong certificate-based authentication leveraging RTSPS (aka RTSP over TLS). Client authentication for media stream requests is claims-based and may use a limited lifetime security token. The VMS shall offer the ability to encrypt the media stream, including video, audio, and metadata with authenticated encryption. Media stream encryption shall be done at rest and in transit and be a certificate-based AES 128-bit encryption.

The VMS shall allow encryption to be set on a per camera basis for all or some of the cameras. Use Secure RTP (SRTP) to encrypt the payload of a media stream in transit and allow multicast and unicast of the encrypted stream. Use a random encryption key and change periodically. Allow encrypted streams to be exported.

The VMS shall support end to end encrypted streams with cameras supporting Secure RTP (SRTP) both in unicast and multicast from the camera. The Application shall support digitally sign recorded video using SHA.

The Application shall protect archived audio/video files and the system database against network access and non-administrative user access. Media encryption shall support with latest industry standards – AES-128.

The application must support encryptions at the rest and not only on the exported videos footage. The proposed VMS platform must be UL 2900-2-3 Level 3 Cybersecurity certification/ FIPS 140-2 compliant.

2.6.2. Recording server architecture

Recording Server shall be compatible to single and multiple processor servers. The server processor & memory hardware shall be optimized to scale up to 100 cameras in same server if required. Multi-stream should support two independent streams from a camera to the recording server with different resolutions, encodings and frame rates, dependent on camera capabilities. Multi-live streaming shall define multiple streams for live viewing with different properties.

System shall ensure that once recorded, video cannot be altered. The system shall have different recording modes i.e. continuous, manual programmed, event activated etc. on date, time camera-wise. It shall be possible to configure each mode using user-friendly tools. It shall be possible to search and replay the recorded video date, time, camera, event wise. Each recording server shall be mapped to a specific port and this port must be forwarded through the firewall to the recording server's internal IP address.

NAT-firewall requirement

The system shall support port forwarding, which must allow clients from outside of a Network Address Translation (NAT) firewall to connect to recording servers without using a VPN.

2.6.3. Redundancy

The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails

The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data. Minimum required is N: N Redundancy.

In case of Network Failover, the video should be able to locally store on the Camera or on the local NAS in the rack. One's the network is established the stored video should be able to synchronized with the central storage system from day one. (All necessary hardware & license to be given from day one)

Components of the architecture must provide redundancy and ensure that there is no single point of failures in the key project components. Considering the high sensitivity of the system, design should be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage

Software Development Kit (SDK)

The VMS shall provide a documented Software Development Kit (SDK) to allow integration with other application software.

The SDK shall provide a comprehensive library of reusable software components that can be used by other software applications to integrate a wide range of IP video devices under a single object API.

Integration Types and Functionalities: Integration of third-party applications and plug-ins shall be possible in three different ways:

Integration through network protocols shall allow for the possibility to choose coding platform. Protocol integration shall make it possible to:

- Retrieve, save, and change the configuration of the VMS through a SOAP or RESTful API.
- Retrieve live or recorded video, audio, and metadata.
- Send control commands and events to the VMS.
- Receive video management system status information, for example if a camera is down or a server is running out of space.
- Implement protocols on Windows, Java® and Linux® systems.
- Integration through the .NET libraries which shall allow for using software components to integrate with the VMS. .NET integration shall make it possible to:
- Retrieve, save, and change the configuration of the VMS.
- Retrieve live and recorded audio and metadata.

- Display live and recorded video with optional overlay of graphics.
- Issue control commands to the video management system or related device, for example a camera with PTZ and outputs.
- Send and receive events to the VMS.
- Audio support

The Video Management System shall support full two-way audio between clients and remote devices. Two-way audio integration shall support the following features and functions.

Integration with Intelligent Video Analytics - through a cloud native containerized microservice-based application - shall make it possible to:

Deploy video analytics applications on the NVIDIA EGX platform

Register video analytics applications with the VMS through a GraphQL API

Access media streams from video analytics applications using standard protocols, such as RTSP and gRPC

Allow for events, metadata and media streams to be sent back into the VMS from video analytics applications using Kafka, gRPC, or a RESTful API.

The Audio shall be broadcasted through loud speakers from control room to the cameras connected to external speakers. Operator shall be able to select particular camera speaker to enable the public addressing.

Alarm management & monitoring

The system shall maintain a single alarm stack for the complete system, which shall include events received from other system, or events detected by video analytics, network loss, video loss etc. It shall be possible to assign priorities to alarms. System shall maintain audit trail for alarms and actions taken by users in response to alarm shall be recorded and made available for audit.

The VMS shall support a central alarm management and monitoring function, providing an alarm / event queue where all incoming events are on display. The alarm queue shall provide, but not limited to, the following information:

Alarm date and time

Alarm status

Current alarm condition

Detector/input name/address

Alarm location

Message priority

Operator who is working on the alarm/event when it was acknowledged.

All incoming alarms at the SMS GUI workstation shall consist of the following

Comprehensive alarm message.

Blinking icon representing new alarm.

Status of the alarm messages

Graphical map showing alarm location with flashing icon associated with the alarm.

Audible alarm / buzzer.

The alarm and event messages received shall be classified into the following status:

New – All the incoming messages that have not been accepted by any operator are marked New. These messages are displayed to all operators authorized to accept these messages.

Acknowledge – All messages which have been accepted by any operator are marked Acknowledge. The name of the operator who accepted the message shall be displayed. Only this operator can delete the message or put it into the progress.

Progress - Messages that have been placed in the workflow are marked Progress. These messages are displayed to all operators authorized to accept these messages.

The alarm support shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices. The alarm support shall provide a real-time overview of alarm status, or technical problems, while allowing for immediate visual verification and troubleshooting.

Map Function

The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.

The activation of the VMD or Camera disconnected alarm shall display the alarm location with animated camera's icon shown in the location map, and the pre- defined alarm documents.

2.6.4. Client Workstation Functionalities

Server software shall allow the clients seamless operation of all cameras regardless of the actual connection to different recording servers. Software shall allow the client applications to interact with all the camera/database servers simultaneously and allow simultaneous display of live video/recorded video regardless of the zone in which the client is connected.

It shall be possible to define priority based camera control rights for each camera or a group of cameras. The users shall be defined on a hierarchical basis with a minimum of three levels. A higher priority user can take control of camera being controlled by a lower priority' user. In addition, the user shall have facility to request access of any camera and the existing situation permits the user shall be to control the camera.

On screen controls shall be provided to achieve remote operation i.e. PTZ operation of cameras. It shall be possible to view live video from cameras on the surveillance system from 1 to 64 per view. To access views of cameras on any PC with a client viewer application installed. Use multiple screens as well as floating windows for displaying different views simultaneously. View images from several cameras in sequence in a single camera position in a view – a so called carousel.

View video from selected cameras in greater magnification and/or higher quality in a designated hotspot. Receive and send video through the matrix functionality, control PTZ cameras. Use digital zoom on live as well as recorded video. To activate manually triggered events. Get quick overview of sequences with detected motion. Get quick overviews of alerts.

The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall have no effect on recording, or other users.

It is a requirement that all user actions on the system Operator Station be recorded in a log file along with the Security System or Control System's actions. User actions include: Interventions such as manual recording and configuration setting changes. Cameras viewed, Video replayed, Video exported, Cameras pan/tilt/zoomed and preset switching.

This log must also contain a history of the status of the system components. It shall list the status of all cameras, servers and other system components including when they were disabled or foiled. This log shall be maintained for a minimum period of ten (10) days.

Playback & Export

It shall be possible to playback simultaneously min. 64 cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser. The Client shall support search of

recorded video for motion event in user-specified areas of a camera image

The VMS shall allow the operator to capture / Export video from the workstation. The recording shall be captured in a standard format, such as AVI, so as to allow playback using Windows Media Player. The recording shall include audio for video sources if audio recording is used.

The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.

2.6.5. Recording Server (1:1 Configuration)

Sr. No.	Parameter	Minimum Technical Specifications
1	Application	Server compute for hosting application (VMS Management appliance)
2	CPU	Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each, Processor with 3.4 GHz 12MB Cache each or better
3	Memory	Min 16 GB DDR4
4	NICs	Ethernet On-board dual 1Gb network adapter
5	Storage/ OS Hard Disk	Min 2 X 480 GB SSD (RAID1) with “Keep Your Hard Drive” For OS & Application.
6	PCI Slots	(1x PCIe x8) slots
7	Video Input	VGA
8	Power Supply	Platinum rated Dual, Hot-plug, Redundant Power Supply (1+1)
9	Operating System	Latest windows edition
10	Safety approvals	The server must hold CSA or UL Listed Safety Approval.
11	Compliance standards	BIS, IEC 60950-1, European Norm EN 60950-1, CISPR 22/CISPR 24, EN55022/55024
12	Warranty	5 years NBD support with “Keep your hard drive” option
13	iDRAC	iDRAC9 Express to be consider
14	Approved Makes	Dell, HPE, Lenovo, BCD, IBM & VMS OEM Appliances
15	Features	The appliance must be a turnkey solution with Video Management Software pre- installed and only camera and other licenses to be activated at site. The appliance should be extensively tested and hardened for security to prevent malicious attack The solution must have machine-learning based antivirus native to the solution. The solution must have built in maintenance tool developed by the manufacturer of the video management.

Recording Server (N: N Configuration – Failover Redundancy)

The proposed Recording Server shall support at-least 450 Cameras and recording throughput of at-least 1000 Mbps, preloaded with Video Recording Software application & Microsoft® Windows 2019

2U Rack mount

Minimum 2 x Xeon Silver 4216 Processor with 26 bays for Storage fully populated

Minimum Memory: 16GB RAM

2 x 240 GB SSD (Dual mirrored) RAID 1 configured drives for OS and video recording application
Enterprise Grade Hard Disk of 4 TB x 10 Nos at RAID5/6 SATA Drive for video data storage, 15 K rpm speed.

RAID Controller: 512 MB Battery backed RAID controller

Network Interface Card - 2x 1 GbE RJ 45 & 2 x 10 GbE SFP+

USB Port. 1 Display port (HDMI/VGA)

Redundant power supply unit

2.6.6. Application Server

MS Windows Server Software and operating license; and MS SQL. Server Hardware shall be Antivirus preloaded with OS & any other software's required to achieve functionality of CCTV system as ask in the tender

Sr. No.	Description	Specifications
1	Application	Server computer for hosting application (VMS Management appliance)
2	CPU	Up to four 2nd Generation Intel® Xeon® Scalable processors, up to 30 cores each, Processor with 3.4 GHz 12MB Cache each or better.
3	Memory	Min 16 GB DDR4
4	NICs	Ethernet On-board dual 1Gb network adapter
5	Storage/ OS Hard Disk	Min 2 X 480 GB SSD (RAID1) with "Keep Your Hard Drive" For OS & Application.
6	PCI Slots	(1x PCIe x8) slots
7	Video Input	VGA
8	Power Supply	Platinum rated Dual, Hot-plug, Redundant Power Supply (1+1)
9	Operating System	Latest windows edition
10	Safety approvals	The server must hold CSA or UL Listed Safety Approval.
11	Compliance standards	BIS, IEC 60950-1, European Norm EN 60950-1, CISPR 22/CISPR 24, EN55022/55024
12	Warranty	5 years NBD support with "Keep your hard drive" option
13	iDRAC	iDRAC9 Express to be consider
14	Features	The appliance must be a turnkey solution with Video Management Software pre- installed and only camera and other licenses to be activated at site. The appliance should be extensively tested and hardened for security to prevent malicious attack. The solution must have machine-learning based antivirus native to the solution. The solution must have built in maintenance tool developed by the manufacturer of the video management.

SQL Database

Always ON – 1 Set (includes stand -alone domain controllers, MYSQL license)

Intel® E5-2643 v4 (6 Core) 3.4GHz / 20MB / DDR4 2400 / 77GB/s or better

32 GB of RAM or better.

64-bit operating system

Storage as per DB Req

GbE network interface card

3 Network Attached Storage

The network storage manager is to record video and audio streams from IP cameras and video encoders on the network.

The network storage manager must incorporate the server functions and storage elements into a purpose-built chassis.

The network storage manager is to use RAID 6 parity across the storage drives to protect recorded data against a hard disk drive failure.

The network storage manager will only use enterprise-level hard disk drives specifically rated for operation in RAID systems.

The network storage manager chassis must be designed for video surveillance recording applications and encompass redundancy at all vital points:

Redundant, hot swappable power supply modules

Redundant, hot swappable system fans

Hot swappable O/S drive

Hot swappable CPU fans

The network storage manager chassis must be designed for online service and maintenance and cannot be removed from the rack when hard disk drives, fans, power supplies, or operating system drives must be replaced.

The network storage manager is to be built upon a reliable and robust Linux® operating system.

The network storage manager must support a guaranteed recording throughput of 250 Mbps per storage device with a minimum of 64 Mbps of read throughput. This throughput shall be guaranteed under normal and error (RAID rebuild) conditions.

The network storage manager will support any number of cameras so long as the maximum throughput required is less than 250 Mbps.

The network storage manager shall support the recording of H.264 in High, Main, or Base Profiles and MPEG-4 streams from standard resolution and megapixel cameras.

The network storage manager is to support continuous, scheduled, alarm/event (including analytics alarms), motion, and manual recording. Pre- and -post alarm periods shall be configurable up to the total capacity of the system.

The network storage manager must support bookmarking and locking/unlocking of video content on the drives.

The network storage manager is to support privacy tools that allow administrators to establish maximum retention times for normal, alarm, and locked video.

The network storage manager must support an intelligent video grooming protocol that can reduce the frame rate of recorded video as the video ages. Administrators shall have the flexibility to determine whether to groom alarm video or leave at its real-time level.

The network storage manager shall have the ability to report all diagnostic events, including software status diagnostics to a centralized user interface. In addition, Simple Network Management Protocol (SNMP) traps shall be available for monitoring through a third-party SNMP management console.

The network storage manager shall be fully managed from a remote workstation, including the ability to configure settings and update firmware and software.

The network storage manager is to be capable of interfacing with the APC, Smart-UPS using a USB connector. The network video recorder shall receive status and control signals from the uninterruptible power supply (UPS) when it is in backup mode. This function shall inform the operator about the amount of charge remaining and trigger a controlled shutdown when the charge becomes zero.

The network storage manager must meet or exceed the following design and performance specifications.

Sr. No.	Description	Specifications
1	Power Input	100 to 240 VAC, 50/60 Hz, auto ranging
2	Power Supply	Internal, dual-redundant, hot-swappable
3	Operating Temperature	10 °C to 35 °C (50 ° F to 95° F) at unit intake
4	Operating Humidity	20% to 80%, non-condensing
5	Maximum Humidity	10% per hour
6	Operating Altitude	–16 to 3,048 m (–50 to 10,000 ft)
7	Operating Vibration	0.25 G at 3 to 200 Hz at a sweep rate of 0.5 octave/minute
8	System Drive	Windows / Linux system drive
9	RAID Level	RAID 6 for storage drives
10	Drive Interface	SAS/SATA II
11	Network Interface	2, 1 Gigabit Ethernet RJ-45 ports (1000Base-T)
12	Security	2 modes: secure mode (device authentication) and unsecured mode
13	Auxiliary Interfaces	USB 2.0 , USB 2.0 Ports on rear panel, 1 USB 2.0 port on front panels
14	Certifications	CE,Class A FCC, Class A UL/cUL Listed C-Tick S Mark CCC/CQC

4 VMS Client Monitor Application

The Client Monitor application shall allow for live monitoring of video and audio.

The Monitor shall enable view of 1 to 16 video tiles simultaneously on Megapixel Clarity (Up to 5 MP) AT 25 FPS PAL.

The VMS Monitor application shall allow operators to view an instant replay of any camera.

The operator shall be able to define the amount of time he wishes to go back from a predefine list or through a custom setup period.

The operator shall be able to control the playback with play, pause, forward, and speed buttons.

The VMS Monitor application shall allow operators to add bookmarks or to switch their instant replay view into the Archive Player application, for advanced operations, by clicking on a single button in the Instant Replay tab.

The Operator shall be able to choose and trigger an action from a list of available actions included but are not limited to:

- View camera in a video tile
- View camera on a Decoder (analog monitor)
- View Map or procedure in a video tile
- Starting/stopping PTZ pattern
- Go to PTZ Preset
- Sending alert messages.
- Sending e-mails

The VMS Monitor application shall provide management and control over the system using a standard PC mouse, keyboard. The VMS Monitor application shall display all cameras attached to the system regardless of their physical location on the network. Location of the cameras shall be viewed on a single screen via Maps.

The VMS Monitor application shall display all camera sequences created in the system.

The VMS Monitor application shall allow operators to control (Pause/Play, skip forwards, skip backwards) Camera Sequences, without affecting other operators' ability to view and control the same sequence.

The VMS Monitor application shall display all cameras, sequences and analog monitors in a logical tree.

The VMS Monitor application operator shall be able to drag and drop a camera from a tree of available cameras into any video tile or an analog monitor icon for live viewing.

The VMS Monitor application shall support Graphical Site Representation (Maps) functionality, where digital maps are used to represent the physical location of cameras and other devices throughout facility.

The VMS Monitor application operator shall be able to drag and drop a camera from a map into a video tile for live viewing.

The VMS Monitor application shall support the procedure functionality, where procedures can be triggered to appear during a certain event and can be used to provide detail written or verbal instructions to the operator as to the actions to be taken.

The VMS Monitor application shall support digital zoom on a fixed camera's live video streams

The VMS Monitor application shall support digital zoom on a PTZ camera's live video streams

Each workstation running the IP Based VMS client application shall be able to use a CCTV keyboard that can control the entire set of cameras throughout the system, even if the system consists of motorized cameras produced by different manufacturers.

The VMS client shall be able to use multiple CCTV keyboards to operate the entire set of cameras throughout the system, including cameras of various manufacturers' brands, including their PTZ functionalities (i.e.: one keyboard manufacturer controls another manufacturer's dome or vice-versa).

The VMS client CCTV Keyboard Interface shall provide full video matrix operations

The VMS shall support full control for PTZ (Pan Tilt and Zoom) cameras.

5 Network Cables & Accessories

Weatherproof housing should be used for Outdoor application.

The Housing should be made of extruded aluminum and should be weatherproof. The minimum internal dimensions of the housing should be capable of housing the camera and the Varifocal lens.

The camera housing should be:

- Compatible to camera
- Suitable for the make and model no of cameras offered and as specified by the manufacturer
- Should be compact and indoor / outdoor type as required.
- Suitable for operation in upright and inverted position
- Should be weatherproof in case of outdoor mounting.

6 Camera mount

The camera mount should be of the same make as that of camera and suitable for the model number offered as specified by the manufacturer.

Should be compact and indoor / outdoor type as required.

Should support the weight of camera. Camera accessories such as housing pan & tilt head in any vertical or horizontal position.

Should be weatherproof in case of outdoor mounting.

7 Layer 2 POE switch – for Indoor areas

The Layer 2 PoE switch should be a minimum of Twenty-Four port Ethernet switch with uplink management functionality which provide 22 copper ports operating at 10/100/1000 Mbps and two fiber ports that forward this data to the next network device.

There should not be any programming required to use the switch. All Twenty-Two ports should be IEEE.802.3at compliant minimum 30 Watt Power per port. Two ports should be 10/100/1000 configurable for copper or fiber media for use with multimode or single mode optical fiber, selected by optional SFP modules.

Sr. No.	Description	Specifications
1	Switch Type	Managed Network Switch
2	Operating Power	110/240VAC with internal power supply unit.
3	Max Power Per PoE Port	30 W max.
4	Total PoE Power Budget	up to 720W max.
5	Switch Architecture	Back-plane: 52 Gbps
6	Packet Buffer	1Mbits
7	Mac Address	8K
8	Flash ROM	4Mbytes
9	DRAM	32Mbytes
10	Copper Ports	22 Nos. of 10/100/1000TX: RJ45 × 22
11	Combo / Fiber Ports:	2 Nos. of 10/100/1000TX RJ45 or 2 100/1000FX SFP
12	Console port	RS232 × 1
13	Operating Temperature:	0 deg C to +55 deg C
14	Storage Temperature:	-40 deg C to +70 deg C
15	Operating Humidity:	0% to 95% (non-condensing)
16	MTBF	>100,000 Hrs
17	Certification:	CE, FCC & UL
18	Salient Feature	- Ambient operating temperature range: 0° C to +55° C - 10/100/1000 BASE-TX POE and 100/1000 BASE-FX - Flexible optics configuration via SFP plug-in modules - Fully configurable through CLI, web-based or SNMP network management - IGMP Snooping V1/V2 for multicast filtering and IGMP Query V1/V2

Sr. No.	Description	Specifications
		- Port based VLAN (IEEE 802.1Q) - Rapid Spanning Tree protocol (IEEE 802.1W) - Port Based Security - IP-Based Bandwidth Management - SNMP V1/V2c/V3 - Power Supply Included

8 Layer 2 Industrial Grade PoE switch

The Layer 2 PoE switch should be a minimum Eight Port Ethernet switch with uplink management functionality which shall provide 8 POE copper ports operating at 10/100 Mbps and two fiber ports that forward this data to the next network device.

There should not be any programming required to use the switch. All Eight Copper Ports should be IEEE.802.3at compliant with minimum 30 Watt Power per port. Two ports should be 100/1000 fiber ports for use with multimode or single mode optical fiber, selected by optional SFP modules.

Sr. No.	Description	Specifications
1	Switching Bandwidth	5.6 Gbps
2	POE Power	30 Watt Per Port Total 240 Watt POE Budget
3	Packet Buffer	1Mbits
4	Mac Address	8K MAC address table
5	Flash ROM	4Mbytes
6	DRAM	32Mbytes
7	Connectors	8 Nos. of 10/100TX POE Copper Ports and 2 Nos. of Gigabit Combo Ports 100/1000FX or 2 Nos. of 10/100/1000 TX Copper Ports
8	Power Supply	PoE: 48-56VDC, Redundant power with removable terminal block for local and remote power.
9	Power Consumption:	240 Watts (Full load), 12 Watts without PoE
10	MTBF:	>100,000 hours
11	Operating Humidity:	5% to 95% (non-condensing)
12	Operating Temperature:	-20˚C to 70˚C
13	Storage Temperature:	-40˚C to 85˚C
14	Certification / Compliance:	CE, FCC & UL

15	Salient Features:	- Environmentally hardened for direct deployment in outdoor conditions - 10/100 BASE-TX POE and 100/1000 BASE-FX - Flexible optics configuration via SFP plug-in modules - Fully configurable through CLI, web-based or SNMP network management - IGMP Snooping V2/V3 for multicast filtering - Port based VLAN (IEEE 802.1Q) - Rapid Spanning Tree protocol (IEEE 802.1W) - MAC based Port Security - IP-Based Bandwidth Management - SNMP V1/V2c/V3 Inclusive of Industrial Grade Power Supply Included

9 Layer 3 Switch

The Layer 3 Managed Network Switch shall be a managed and should have provision of 12 Nos. of 100/1000 Fiber Ports and 12 Nos. of 10/100/1000 Tx Copper Ports, switch should have inbuilt power supply unit.

This network switch should be managed and user configurable, the electrical ports should support 10/100/1000Mbps Ethernet IEEE 802.3 protocol and should have Layer 3 Static Routing functionality.

The switch should have inbuilt power supply unit with provision of internal / external redundant power supply to minimize the possibility of single point of failure.

Sr. No.	Description	Specifications
1	SNMP	SNMP v1/v2c/v3
2	Bandwidth Management	IP Based Bandwidth management.
3	Port Security	MAC based Port Security and SNMPv3 authentication and access security
4	IP Security	IP address security management to prevent unauthorized intruder
5	Login Security	IEEE802.1X Port Based Access Control, Radius Security Management, 8 Priority Queues, V LAN Tagging, Supports IPv6 , IGMP v2/v3, 128 multicast groups.
6	Port Security & Segregation	VLAN (802.1Q)
7	System Event Log	Notifications
8	LLDP	IEEE 802.1AB Link Layer Discovery Protocol
9	STANDARD COMPLIANCE	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX/100Base-FX IEEE802.z Gigabit fiber IEEE802.3ab 1000Base-T IEEE802.3x Flow Control IEEE802.3ad Port trunk with LACP IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service IEEE802.1q VLAN Tagging IEEE802.1x User Authentication

Sr. No.	Description	Specifications
		ITU-T G.8032v1/v2 (ERPS)
10	Power Supply	Inbuilt AC 100V~240V 50/60Hz and Redundant Internal / External Supply
11	MTBF:	>100,000 hours
12	Power Consumption	Maximum 36 Watts
13	Operating Humidity	5% to 95% (Non-condensing)
14	Operating Temperature	0˚C to 50˚C
15	Storage Humidity	5% to 95% (Non-condensing)
16	Storage Temperature	-40˚C to 70˚C
17	Installation	19" Rack Mount
18	Certification / Compliance	CE, FCC, UL, ROHS
19	Features	- Fully configurable through CLI, web-based or SNMP network management. - MLD v1/v2 for filtering multicast traffic) - Rapid Spanning Tree protocol (IEEE 802.1w) - Layer 3 Static Routing functionality. - Store & Forward processing. - Switching Bandwidth: Minimum 44 Gbps - TACACS+ & SNTP - Jumbo Frames up to 9.6 K Bytes.
20	Slot Gigabit Module Hot-Swappable	10 x 10/100/1000T RJ45 12 x 1000FX Fiber SC

10 SFP Modules

The Small Form-Factor Pluggable (SFP) modules should be Switch OEM and MSA Compliant and would be used for optical interface.

Sr. No.	Description	Specifications
1	Form Factor	SFP
2	Ports	1 x SC/LC
3	Transmit Power	- 8 dBm
4	Receive Power	≤-24
5	Wavelength	1310 / 1550 nm
6	Cable Distance Supported	Minimum 15 kms.
7	Mode	Single-Mode
8	Material	Metal
9	Operating Temp for Outdoor SFP's	-20˚C to 70˚C
10	Operating Temp for Indoor SFP's	0˚C to 55˚C

11 12 core Optical Fiber Armored Cable

Sr. No.	Description	Specifications
1	Cable Type	12 core, single mode, steel armoured, loose tube, gel filled Fiber Each cable should be clearly labelled on the cable jacket behind the patch panel at a location that
2	Cladding	125 ± 1 µm
3	Coating	245 ± 1 µm Micron Primary Coated Buffer
4	Core Diameter	9 Micron
5	Fiber Core / Cladding	50 / 125 µm
6	No. of Cores	6
7	Armour	Corrugated Steel Type Armour
8	Max Attenuation	IEEE802.1Q for Trunking, IEEE802.1D for Multiple spanning Tree Group, IEEE802.1P Priority Queues, IEEE802.33X Flow Control
9	@1310NM:	≤ 0.38 db/km
10	@1500NM:	≤ 0.25 db/km
11	Zero dispersion wavelength	1297 - 1316 nm
12	Tensile Load, long term, short term	800N, 1200 N
13	Zero dispersion slope	≤ 0.105 ps/nm 2-km
14	Bend Radius	Loaded- 15 X OD and unloaded- 10 X OD
15	Flame Test Method	IEC 60332-3-24, IEC 60754-2, IEC 61034-2
16	Attenuation @ 1300nm (maximum)	1.00 dB/km
17	Tensile Rating:	1500N
18	Max Crush Resistance:	3000N
19	Operating Temperature	-20 °C to +70 °C
20	Environmental Space	Indoor- Unarmored /Outdoor - Armoured

All Passive Components in the structured cabling distribution network shall meet or exceed the relevant component specification of the EIA/TIA 568-B and EIA/TIA 568-C.2 series, EIA/TIA 569-A, EIA/TIA 606, EIA/TIA 607 and ISO/IEC 11801-1: 2017 standards or latest version, amended to date.

As per TIA/EIA standards requirement, the horizontal cabling system shall run from each workstation outlet to the patch panel installed at networking rack. The maximum horizontal distance from the workstation outlet to the patch panel shall not exceed 80 meters.

An additional length shall be permissible for patching cables between patch panels and networking switch at one end and between workstation outlet and workstation and the combined length shall not exceed 10 meters.

The patching cables shall be from cabling system OEM in various lengths, i.e., 1mtr, 2mtrs or 3 Mtr as per requirement. The complete cabling system shall be from a single OEM.

12 CAT 6A cable

Sr. No.	Description	Specifications
1	Manufacturer	As per Tender make
2	Type	Category 6A/Class E Unshielded Twisted-Pair (UTP) Cable shall be ETL verified
3	Conductor Gauge	23 AWG Solid Bare Copper (4 pair)
4	Conductor Type	Solid
5	Conductors quantity	8
6	Separator Type	Bisector
7	Conductor Material	Bare copper
8	Insulation Material	High Density Polyethylene
9	Sheath	PVC
10	Diameter Over Jacket, maximum	6.00 mm Nominal
11	Jacket Thickness	0.508 mm | 0.020 in
12	Transmission Standard	ANSI/TIA-568-3. D | CENELEC EN 50288-6-1 | ISO/IEC 11801 Class E
13	Outer Jacket	The Cat 6 cable should have outer jacket suitable for environmental space of Low Smoke Zero Halogen (LSZH) with below verified test reports,
14	Smoke Test Method	IEC 61034-2
15	Acid Gas Test Method	IEC 60754-2
16	Flame Test Method	IEC - 60332-3-22
17	dc Resistance Unbalance, maximum	5%
18	Operating Frequency	250 MHz
19	Characteristic Impedance:	100 ± 15Ω
20	dc Resistance, max	7.61 ohms/100 m
21	Operating Voltage, max.	80 V
22	Resistance Unbalance:	5% Max
23	Capacitance Unbalance:	330pF/ 100m
24	Delay Skew:	< 45nS
25	NVP (%):	69%
26	Operating Voltage:	72V
27	Mutual Capacitance	5.6 nF/100 m @ 1 kHz
28	Installation Temp	0 °C to +60 °C
29	Nominal Velocity of Propagation	68%
30	Operating Temp	20 °C to +60 °C
31	NEXT`	6dB
32	PSELFEXT	8dB
33	PSNEXT	7.5dB
34	Return Loss	4dB

Sr. No.	Description	Specifications
35	ELFEXT	6dB
36	Insertion loss	5%
37	Report & Testing	Cat 6A Cable's Factory test report shall be accessible through online portal
38	Cable wt. per Box:	13.6 Kgs nominal

Installation of UTP 6A Ethernet Cable

Cables should be dressed and terminated in accordance with the manufacturer's recommendations and/or best industry practices. Pair untwist at the termination should not exceed one-half an inch. The Maximum length of Cat-6 A Cable including Patch Cords should not exceed 80 to 90m. Bend radius of the cable in the termination area should not be less than 4 times the outside diameter of the cable. The cable jacket should be maintained as close as possible to the termination point. Cables should be neatly bundled and dressed to their respective panels or blocks. Each panel or block should be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

The distance between UTP data cable and any power cable should be more than 4 inches. Each cable should be clearly labelled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labelled within the bundle, where the label is obscured from view should not be acceptable.

Cables should be installed in continuous lengths from origin to destination (no splices). Horizontal distribution cables should be bundled into groups of not greater than 40 cables. Cable bundle quantities in excess of 40 cables may cause deformation of the bottom cables within the bundle. Cables should not be attached to ceiling grid or lighting support wires. Any cable damaged or exceeding recommended installation parameters during installation should be replaced by the contractor prior to final acceptance at no cost.

A self-adhesive label or PVC marker ferules should identify the Cables. A cable label should be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate. Similar label or marker ferrules should also be placed on a section of the cable near to the patch panel termination. Pulling tension on 4-pair UTP cables should not exceed 25-pounds for a single cable or cable bundle. The pathway should be adequately sized so as not to exceed the 80% cross-section fill of cables. The pathway should be securely installed in the facility. Care should be taken when pulling cables into trucking to avoid damage due to snagging. Trucking partitions should be used to separate the data cables from power, and bridges should be used where data cables have to cross the mains.

OFC connectors

It shall be Single mode LC type with push-pull mechanism. Fully in compliance with latest industry standard. It shall be possible for selection of wide range of ferrule hole diameter selection.

OFC adaptors

It shall be suitable for Single mode LC type fiber cable connectors. Fully in compliance with latest industry standard. It shall be with snap / latch mechanism.

OFC Patch Cords

It shall be suitable for Single mode LC-LC type fiber cable connectors with plastic molded plug type connectors. Standard 2.5 mm ceramic ferrules shall be used. It shall be compact and easy to connect.

13 IT Equipment Technical Specifications

Standardized Signage for CCTV Camera Locations

It is necessary that the CCTV Camera locations put some standardized signs informing the public of the existence of CCTV cameras. This will bring about the transparency on installation of CCTV cameras and no one would be able to later complaint for breach of privacy.

Following tables give draft specifications for the signage's to be put at the camera locations.

Sr. No.	Item	Specifications
1	Size	Board Width = 8" / 12"
2	Plate Material	Minimum 1.5 mm Plate Thickness, Corrosion resistant Aluminum Alloy as per IRC 67:2001 (Code of Practice for Road signs) Weather-resistant, having color fastness
3	Mounting	Can be mounted on wall or pole (appropriate mounting brackets to be provided)
4	Design	As per following signage diagrams

14 Camera poles & fixtures

Sr. No.	Description	Minimum Specifications
1	Pole type	5mm Thick MS Pipe for outdoor Cameras with zinc chromite primer & powder coating of suitable shade.
2	Height	4 /6 Meter OR higher as per BOQ, As-per-requirements for different types of cameras & Site conditions. Min. height of camera above the ground should be 10 feet
3	Pole Diameter	Min. 80mm diameter pole (Contractor to choose larger diameter for higher height as per Load calculation)
4	Bottom base plate Foundation	Casting of Civil Foundation with foundation bolts, to ensure vibration free erection (basic aim is to ensure that video feed quality is not impacted due to winds in different climatic conditions). Expected foundation depth to be calculated as per pole load calculation. Earthing with proper grounding for pole to be given.
5	Panel	Weatherproof Panel for camera termination & power supply.

15 Inspection and Testing

CCTV system shall undergo factory testing and inspection by Contractor's authorized representatives, Third Party Inspection (TPI) Agency. Factory Acceptance Testing of offered items shall be witnessed by OWNER/ PMC at their discretion.

Video Wall System

Video Wall Cubes for 24*7 Operations
Rear projection DLP Video Cubes for 24*7 Operations
Size: 70" diagonal **with +/- 5" variation**
Front/Rear Serviceable
Matrix: 2 sets of 2x2 placed Back to Back, driven by Video Display Processor
Depth of Video Cubes must be less than 1050mm
Backlit Type: LED, with 6x redundancy for each of 3 LED's or LASER with multiple LASER bank for redundancy
Declared Backlight Lifetime: 80,000 Hrs or more in Eco Mode
The minimum brightness level must be mentioned along with declared life of backlight of display panel
Screen Gap (Bezel to Bezel) : **2 mm** or lesser
Resolution: Full HD 1920 x 1080 or Higher
Luminance: 200cd/m2 (nits) or more / equal to 1000 Lumens or more
Viewing angle: 178º (H), 178º (V) or better
Video compatibility: NTSC, PAL, SECAM
Built in processing and scaling
Dual link DVI-D (or Better) Input – 2 inputs & Output - 1
Ethernet ports - 1 at least
Input through Video Processor
Control: Over LAN
Unified Control of Video Wall through Server for wall configurations
Unified Control of Video Wall through Server for switching the complete Wall ON/Standby
It should be possible to calibrate entire video wall for uniformity of brightness, contrast ratio manually , through control software from a desktop
Automatic color and brightness calibration of the Video Wall: Integrated color & brightness sensors in each screen along with calibration software to automatic maintain color and brightness uniformity among all screens without manual intervention or any trigger using external spectrometer. The mentioned calibration should be supported through time based scheduling so as to have touch-less calibration.
It shall be possible to time schedule brightness and contrast ratio for whole Video Walls based on Time of the Day, to optimize power consumption and ease of operations staff
Half Gain Angle (Horizontal / Vertical) : 33Deg/33Deg +/- 3 Deg
Redundant Control Design: to drive 2 Video walls of full 2x2 display, incase of failure of Video Wall Processor to avoid video wall going blank without modification in resolution of content
Aspect Ratio - 16:9
Contrast Ratio - 5,00,000:1 or Better (On Screen or Dynamic) / 1200:1 or Better (Static or Native)
Cooling - Low Noise Fans for heat dissipation efficiently
Operating temperature :10-40 degree centigrade or better
Custom Video wall (2x2) Floor mount kits (2 nos.) To be supplied by Video Wall OEM
Should be universal designed mount for video wall screens which can hold weight of 2*2 panels (to be supplied)
Should be landscape screen mounting
Should have adjustable height, extension and depth
Outer rim is required for two Video Walls of 2*2 matrix
Video wall Processor
Configurable videowall processor that shall support the real-time window display of multiple video, graphic, picture and streamed input sources on a single or tiled video display.
Video Wall Processor to drive 2 number of 2x2 matrix Videowalls
Redundant Design : Redundant Power supplies

Redundant Design: Redundant Fans
Raid1 redundant setup with either 1000 GB HDD or more Hard disk drive
1Gb/s LAN port
Outputs: DVI/HDMI suitable for driving 2 VW sets of 2x2 Panels
Inputs: 2 DVI/HDMI with Audio and 4K resolution. System should be able to simultaneously show multiple sources (available from LAN) on each Videowall.
Processor should have Keyboard and Mouse Control for controlling the Video Wall Layouts.
Layout: It should be possible to create layouts comprising of screen scrapped content of Workstations, DVI inputs, Web sources, URLs configured as sources. Layouts can be pre-configured or changed in real time
Scheduling: It should be possible to schedule specific Layout based on time range (from : to)
Zoning: It should be possible to create two zones.
Sharing & Collaboration: it should be possible to share layout over LAN/ WAN network with workstations connected to meeting room or other workstations connected to same LAN / WAN network.
Soft KVM: The system shall include complete Soft KVM to permit operators to take mouse & keyboard control of Displays, Screen Scrapped applications and DVI source
Ticker: It should be possible to create two separate Tickers which run concurrently (One in each Video Wall Zone). These can be positioned at top or bottom and can run
independently in respective zones
The Ticker can be picked from data source through screen scrapping or through typing
specific incidence, manually
Security: The system shall support password-based access control of Video Wall
Layouts & Tickers
VW Processor should be able to display EMS views based on Windows OS
It shall be possible to load EMS clients on Video Wall Processor, requiring for opening UI for pulling data from EMS or from any other streaming data source
Rack mountable
Control ware: System Design should be Network based and uses Ethernet network infrastructure
Processor is to be mounted in Equipment room which is away from Videowalls. Bidder to visit the site and estimate cable requirements.
Redundancy for Video Wall Processor -
Functionalities must be offered to avoid Video Wall going blank in case of Video Wall Processor goes down, for redundancy.
Video Wall should continue to display contents based on pre-configured layout, without downscaling of Display Content, even if Video Wall Processor goes down.

POC Points Vendor has to demonstrate at site in technical evaluation.

VMS Software:			
S. No.	**Specification**	**Test**	**Test Results & Remarks**
1	Management software shall - discover, add, remove cameras and Configuration of camera live video, recording properties	Vendor shall demonstrate. Vendor shall also submit a detailed write up for the same.	
2	Management software shall be able to configure cameras properties such as Resolution, FPS, WDR, Brightness, saturation, Bit rate etc	Vendor shall demonstrate	
3	Web client support	Vendor shall demonstrate	
4	The software shall support offline and online for maps such as bing map	Vendor shall demonstrate	
5	Software shall support unicast and multicast streams from recording server for live viewing.	Vendor shall demonstrate	
6	Support for recording and playback of audio	Vendor shall demonstrate	
7	Searching the recorded video using timestamp and events	Vendor shall demonstrate.	
8	Digital Signature support for the recorded video	Vendor shall demonstrate	
9	Provision to encrypt recorded video on AES256	Vendor shall demonstrate	
10	Support for Digital Signature for video export in native format	Vendor shall demonstrate	
11	System should Support to export video of multiple cameras on multiple timelines	Vendor shall demonstrate	
12	Bookmarking support for the selected video portion	Vendor shall demonstrate	
13	16 cameras live video shall be displayed with each Monitor @25FPS	Vendor shall demonstrate	
14	Provision to synchronize multiple cameras playback	Vendor shall demonstrate	
15	Provision to group and save the multiple cameras, and able to select the group name for display of group cameras.	Vendor shall demonstrate	
16	Interfaces to export archived video for single camera or multiple selected cameras. Provision to select the time stamp for exported video.	Vendor shall demonstrate	

17	Software shall integrate all edge analytics supported by proposed cameras.	Vendor shall demonstrate	
18	VMS should support camera with all 8 video streams, each stream supporting maximum resolution at 25 FPS	Vendor shall demonstrate	
19	The proposed software should be tightly integrated with the cameras using dedicated drivers developed on cameras open SDK/API	Vendor shall demonstrate	
20	Proposed CCTV OEM should be certified partner with VMS software and certified copy of the same should be provided before the POC	Vendor shall submit the document for the same	
21	The CCTV OEM and VMS software should have dedicated plugin for the following features to be accessed directly from the VMS softwate - Speaker management PTZ auto tracking Dewarping Camera Assistant On-screen controls Auto focus Focus recall Auto update	Vendor shall demonstrate	
22	Edge storage shall secure that when a lost or broken connection is back up, the data stored on the camera's internal storage shall be retrieved and stored in the media database. Edge storage shall secure that after recovery from a malfunction it shall be possible to play back and view the video, and audio recorded by the device, while the malfunction persisted	Vendor shall demonstrate	
23	SD card of camera should be synced automatically, and the sync should be enabled by a single click	Vendor shall demonstrate	
24	The software should have .exe installer version and same should be provided at the time of POC	Vendor shall demonstrate	

25	The client viewer shall support GPU based video decoding to improve video rendering performance and up to 75% reduction in CPU load of the workstation running Client software. The use of GPU based video rendering shall also make client ready for 4K/UHD camera technology	Vendor shall demonstrate	
26	The recording server` shall support GPU based video hardware acceleration decoding to improve CPU load of the workstation running recording server.	Vendor shall demonstrate	
27	VMS manufacturer shall provide their SDK (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system	Vendor shall provide the documents for the same	
28	VMS should consist of only Base license and Channel Licenses. VMS should be provided with unlimited number of Failover Servers and Failover Camera Licenses.	Vendor shall provide the documents for the same	
29	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on the network.	Vendor shall demonstrate	
30	Administrators shall be able to select a storage container for each device and move a device from one storage container to another or move all recordings inclusive archives to the new storage container, or delete them all.	Vendor shall demonstrate	
31	Administrators shall be provided with an overview of the defined storage containers, their archives with path, and free and used space on the drives for each device, including the used storage space in the recording database, and in archives.	Vendor shall demonstrate	

32	The system shall support automatic failover for management servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that management servers fails. Recordings and live display for the logged in client/operator should not be affected in case of management server fails.	Vendor shall demonstrate	
33	The system shall support automatic failover for recording servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that one of a group of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.	Vendor shall demonstrate	
34	The system shall support parallel recording of a camera at two different recording servers	Vendor shall demonstrate	
35	Video Recording Server should support Recording at different resolution for the same camera enabling to record one stream at Higher resolution at local station for 30 days and the other at minimum resolution of 800 X 600 which will be archived to central storage for 365 days. Bidder shall have option to consider more than one server per station to achieve the same.	Vendor shall demonstrate	
36	Video Recording Server should support archiving minimum resolution of 800 X 600 video to Central Unified storage at scheduled hours. Archiving should resume automatically after any disconnection in the WAN link between station and central location.	Vendor shall demonstrate	
37	Archived Recordings for 365 days should be automatically after retention period from the central storage as per FIFO policy.	Vendor shall demonstrate	
38	In case of non-availability of WAN link, Video recording Server shall save minimum resolution of 800 X 600 data internal to server for up to 7 days to avoid data loss, once the link is established the archiving should happen completely.	Vendor shall demonstrate	

39	The system shall automatically switch to unicast, if the client fails to connect to the multicast stream.	Vendor shall demonstrate	
40	The system shall include an integrated matrix solution for distributing video to any computer with the client viewer installed. A computer on which the matrix-triggered images can be shown must be known as a matrix recipient.	Vendor shall demonstrate	
41	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles	Vendor shall demonstrate	
42	In case of any event the PTZ camera should move to the predefined location. Software should also support click to centre PTZ functionality	Vendor shall demonstrate	
43	The system should be able to groom the video data from higher FPS to lower FPS in separate storage	Vendor shall demonstrate	
44	The client viewer shall support auto switching from high resolution to low resolution and vice a versa as per the camera display tile size	Vendor shall demonstrate	
45	VMS should support Scalable Video Quality Recording to record high-quality video to edge storage, while a low-quality reference video stream can be recorded centrally in the recording servers	Vendor shall demonstrate	

Design Brief Report

Upgradation of CCTV System with Video Management & Monitoring Centre.

ACTREC-Karghar-Mumbai

Content

1. SITE INTRODUCTION
2. SCOPE
3. DESIGN

Site Introduction

The Advanced Centre for Treatment, Research and Education in Cancer (ACTREC) is the state of art of R&D wing of the Tata Memorial Centre. It is located in the picturesque settings at the foothills of the Sahyadri mountains in Kharghar, Navi Mumbai.

This document explains briefly the Digital Surveillance Systems that are suggested for this project, the basic essential components of these systems, and an explanation on the areas of implementation of each system.

Security System design for the following blocks is included in this document.

- CANCER RESEARCH BUILDING (KS)
- CANCER RESEARCH CENTER (PS)
- WARD BLOCK (JS)
- HEMATOLYMPHOID BLOCK (RRS)
- HADRON BUILDING (PTC)
- RADIOLOGICAL RESEARCH UNIT (RRU)
- RETREAT GUEST HOUSE
- CENTER FOR CANCER EPIDEMIOLOGIST (CCE))
- ARCHIEVE BUILDING
- ASHA NIWAS
- VASUNDHARA GRUHA (Santhi Sadhan)
- SHANTILAL SHANGHVI PEDIATRIC HEMATOLYMPHOID CANCER CENTER

Site Introduction

The project will be executed in 2 Phases.

Phase 1

- ASHA NIWAS & VASUNDHARA GRUHA (Santhi Sadhan)
- FIBER OPTIC CABLE NETWORK FOR THE ENTIRE PERIMETER

Phase 2

- CANCER RESEARCH BUILDING (KS)
- CANCER RESEARCH CENTER (PS)
- WARD BLOCK (JS)
- HEMATOLYMPHOID BLOCK (RRS)
- HADRON BUILDING (PTC)
- RADIOLOGICAL RESEARCH UNIT (RRU)
- RETREAT GUEST HOUSE
- CENTER FOR CANCER EPIDEMIOLOGIST (CCE))
- ARCHIEVE BUILDING
- SHANTILAL SHANGHVI PEDIATRIC HEMATOLYMPHOID CANCER CENTER

Scope

DIGITAL VIDEO SURVEILLANCE SYSTEM

The main objective of the CCTV System is to monitor and record the activities, and movement of people/vehicles through the critical entry/exit points as indicated below. IP-based CCTV System is proposed.

Components

- 2MP Fixed Dome IP POE cameras for indoor areas.
- 5MP Outdoor Bullet cameras for the building Entry/ Exit Parking areas and perimeter surveillance.
- ANPR Cameras
- 2 MP PTZ cameras for perimeter surveillance
- Network Recording Servers
- Storage Area Network (SAN)
- Client PC with Professional monitors in the Security Room.

The enterprise version of Network Video Servers will be used for application and video storage. The storage backup shall be for a period of 45 days at 2 MP resolution, at 15 – 20 images/frames per second on continuous recording mode.

System Description

- All the cameras are monitored and controlled through Central security management software in main and redundant configuration. The server requests and receives live video from cameras, transmits live and recorded video to client stations, receives camera control commands from operators (Station users) and forwards them to cameras, stores live video on hard disk and archives recorded video to off-line storage media.
- Using this system, there is no need to watch a wall full of monitors manually call up cameras or search through dozens of tapes. The local/central stations can view any one camera (or) one set of cameras, based on his/her authorization levels, on their respective stations. It is possible to view multiplexed camera images on a single screen.
- Recording and live view frame rates are configurable on a camera-by-camera basis. The storage is scalable with simplified storage expansion and the flexibility to add storage as required.
- An encrypted signature is stamped on each frame that guarantees that an image has not been altered. This feature ensures that the image was not altered after the signature was applied.
- The server shall be for real-time 20 fps for viewing, 20 fps, and at least 45 days of continuous recording on MPEG 4 / H.264 / H.265 or the latest recording formats.
- Administration functions for user access and system auto recovery as required.
- Real-time monitoring of all images as required.
- The CCTV System/Software should be capable of seamlessly integrating with all security systems.

Proposed Cameras and Systems

2MP IR Vandal Proof Dome Camera with Night Vision to be installed at 15 to 20 Meters for covering the complete Rooms corridor.

5 MP IR Vandal Proof Bullet Camera with Night Vision to be installed at Entry / Exit Points for Outdoor Monitoring.

ANPR Camera for Vehicle Number Plate and Driver Identification

2 MP PTZ Cameras for larger area Converge at Roadways / Building Rear Sides.

Active and Redundancy Server for Live View, Recording and Storage.

PoE Switches with 4 Uplink / Down Link with SFP Module

System Architecture

- All Corridor Cameras, Lift Lobby Cameras shall be connected to PoE Switch installed at each floor through CAT6A Cable.
- PoE Switches are Interconnected from each floor and interfaced with Network Switch installed at the GF / Perimeter through CAT 6A Cable.
- Roadway cameras shall be connected to the nearest buildings or respective PoE switches through OFC & CAT6A Cable.
- 12 Core of Optical Fiber cables shall be used for Connecting Network Switch from each building. 2 runs of 12 core OFC cable is prosed for active and redundant communication.
- Through SFP Module Optical Fiber Cable shall be converted into CAT6A and connected to the Main Switch installed at Server.
- Active Server shall be connected with Main Switch to connect all the cameras installed in facility.
- The redundancy Application Server will be parallel with the Active Server, In case of a fault or breakdown of the Active Server, Redundancy Server shall come active for Live View, Storage, and playback.
- Sever shall be connected to SAN (Storage Area Network) for Backup Recording.
- Operator workstation for CCTV Operators shall be placed for 24 / 7 Monitoring.

System Architecture

Dome Cameras in Floors / Buildings

PoE Switches

Active Server

Redundancy Server

Outdoor Bullet Cameras in Building / Roadways

Video Wall Controller

SAN (Storage Area Network)

Video Wall

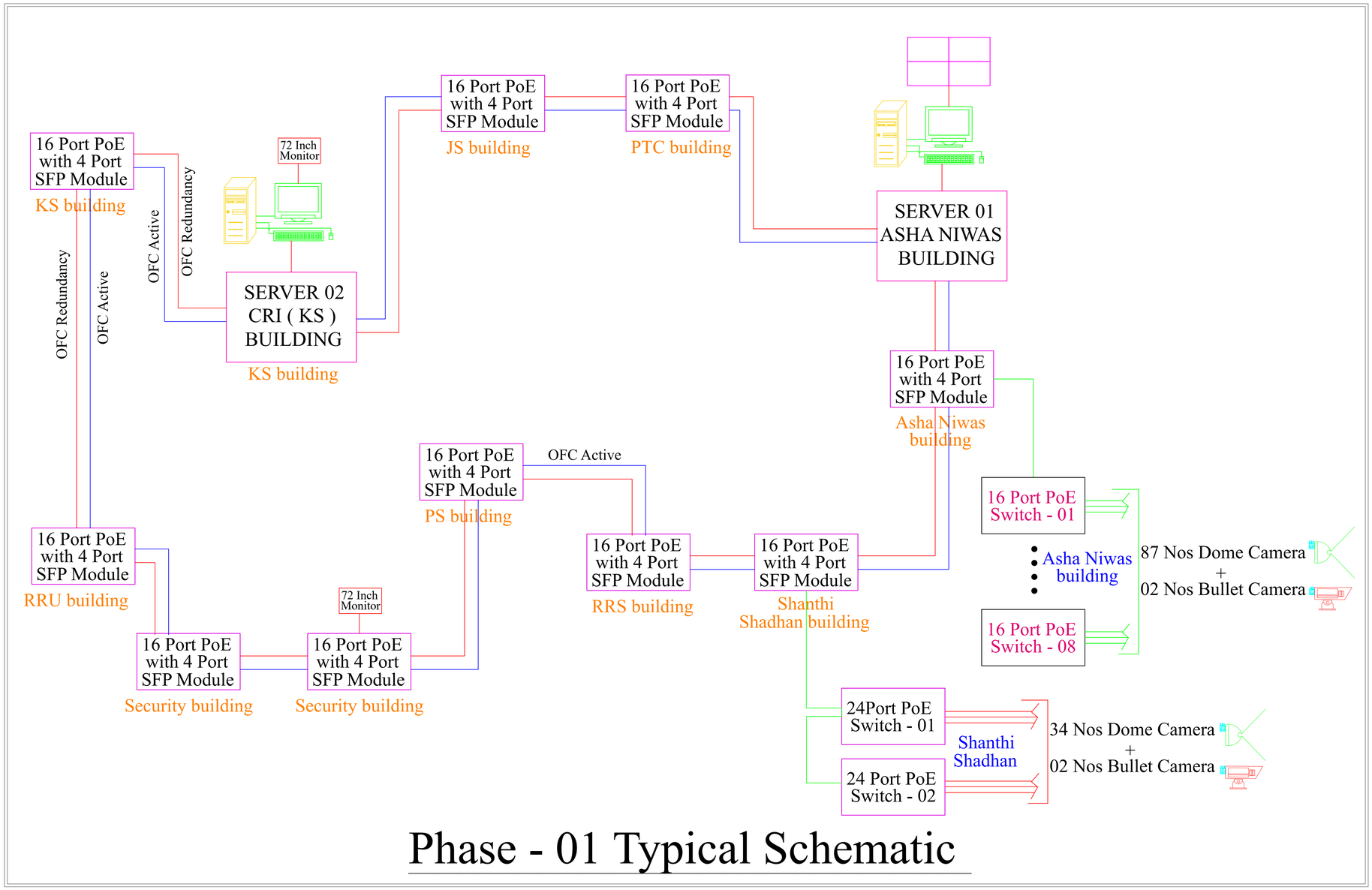
Operators Workstations

Proposed Central Monitoring Center

1. LED Profession Displays are connected to hardware to record and transmit footage, so remote video monitoring is much easier to achieve and is usually of a higher quality.
2. Video wall technology enables your operations team to see the whole picture at a glance. We offer access to high-quality video and information feeds so your operators can detect and act on security breaches before they become threats.
3. Video walls are known for their high brightness, large size, and ability to display content across multiple screens simultaneously, making them an effective and eye-catching communication tool.

Proposed Video Wall System

Centralized Command and Control Centre for CCTV System- Video Wall – 2 x 2 screens



Phase - 01 Typical Schematic

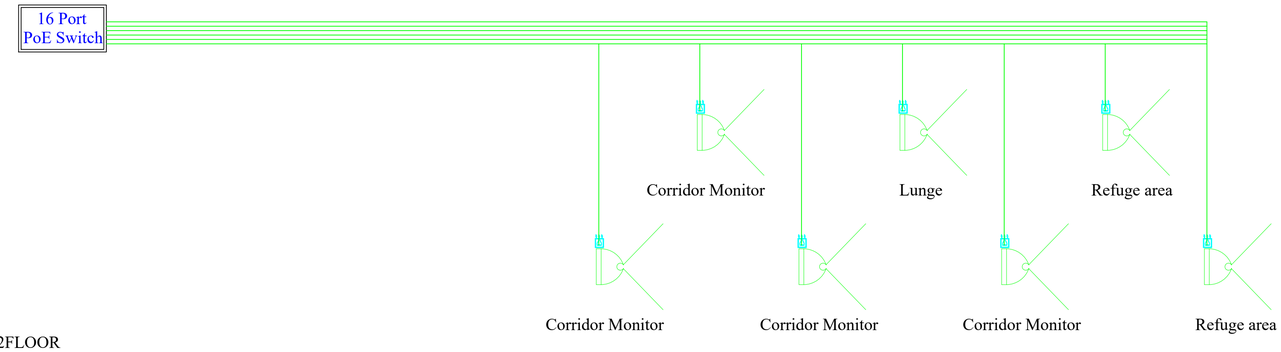
Legends:

	Application/Recording Servers - Active / Redudant
72 Inch Monitor	Monitor
	Video Wall 2x2
	OFC Active
	OFC Redundancy
	CAT - 6A cable
	Bullet Camera
	Dome Camera
	ANPR Camera
	PTZ Camera

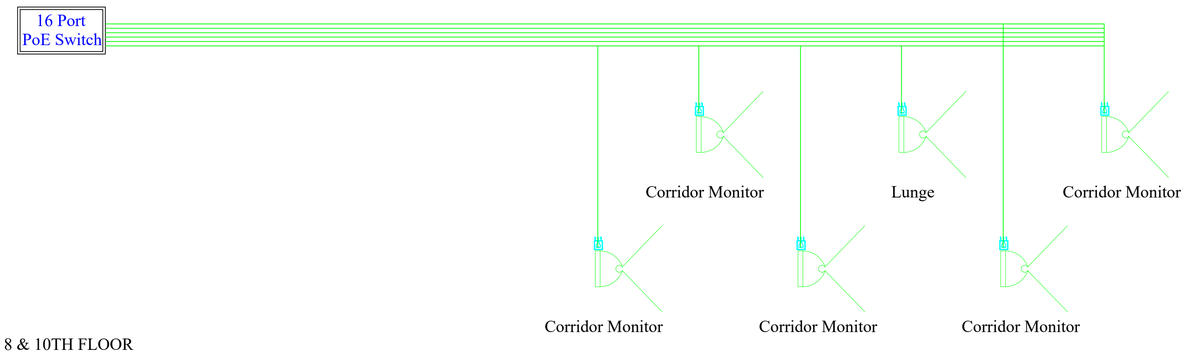
IBMS CONSULTANTS:

Qpro Design Consultants Pvt. Ltd.

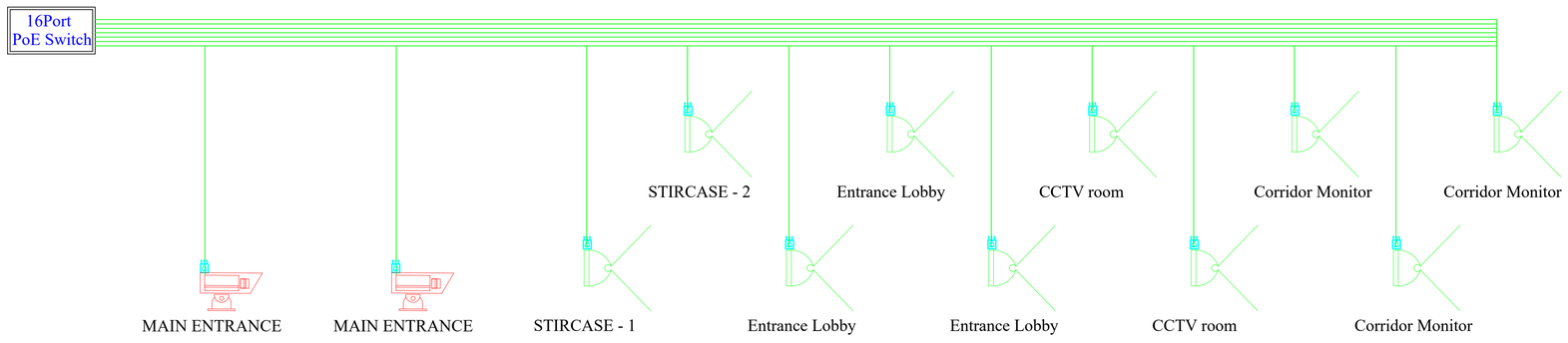
ACTREC
CCTV DESIGN



5,7,9,11&12FLOOR



1, 2, 3, 4, 6, 8 & 10TH FLOOR



SITE PLAN & STILT FLOOR

Asha Niwas CCTV Schematic

PROJECT:
PROPOSED INFOSYS FOUNDATION ASHA NIWAS, ACTREC CAMPUS, NAVI MUMBAI

DONOR:
INFOSYS FOUNDATION, BENGALURU

CLIENT:
ACTREC, NAVI MUMBAI

DRAWING:
SCHEMATIC

IBMS CONSULTANTS:

Qpro Design Consultants Pvt. Ltd.

36A, BATHALA VINAYAGAR KOIL STREET, VIGNESHWAR NAGAR PUZHUTHIVAKKAM NANGANALLUR CHENNAI, TAMIL NADU 600 091

LEGEND

SYMBOL	DESCRIPTION
	DOME CAMERA
	BULLET CAMERA
16Port PoE Switch	16Port PoE switch

Note:
1. The design is tentative marking cameras, as per site condition will change design
2 . The PoE switch location as per site condition condition to be marked

REVISION

DATE	R.NO	DESCRIPTION
21.05.2024		DESIGN STAGE

DESIGN STAGE

DATE	21.05.2024
SCALE	NTS
SHEET SIZE	A3
DRG NO.	ACTREC-NM-AN-CCTV-SCH-400
DRN BY	Y.P
CHK BY	G.B

ARCHITECTS :

#138/9, Sai Vinayaka,
2nd Cross, Elephant RockRoad,
3rd Block, Jaynagar,
Bengaluru-560011
protospace@rediffmail.com

PROTOSPACE *ARCHITECTS*

BUILD YOUR IMAGINATION

CCTV - Phase - 01

	12 Core OFC cable with HDPE Pipe for all perimeter (Active)	Qty shown on BOQ sheet
	12 Core OFC cable with HDPE Pipe for all perimeter (Redundancy)	Qty shown on BOQ sheet
	Server with monitor, PoE switch etc.,	Qty shown on BOQ sheet
Network switch	Network switch with 4 SFP port for CCTV	10 Nos
	Hume Pipe for Road Crossing	xxx Mtr Approx.

Existing Building

Proposed

PROPOSED SPACE FOR THE IROC BUILDING

OFC for Redundancy

OFC for Active

Server-2 Location at CRI (KS) Second flr

Server-1 Location at Ground floor

30.00 M WIDE D P ROAD

MASTER LAYOUT PLAN

IBMS CONSULTANTS:

QPRO Spec Progic Consultants Pvt. Ltd.

36A, BATHALA VINAYAGAR KOIL STREET, VIGNESHWAR NAGAR PUZHUTHIVAKKAM NANGANALLUR CHENNAI, TAMIL NADU 600 091

DESCRIPTION OF PROPOSED PROPERTY

PROPOSED CENTRE FOR CANCER EPIDEMIOLOGY AT PLOT NO 1 SECTOR 22, KHARGHAR, NAVI MUMBAI

NAME & SIGNATURE OF OWNER

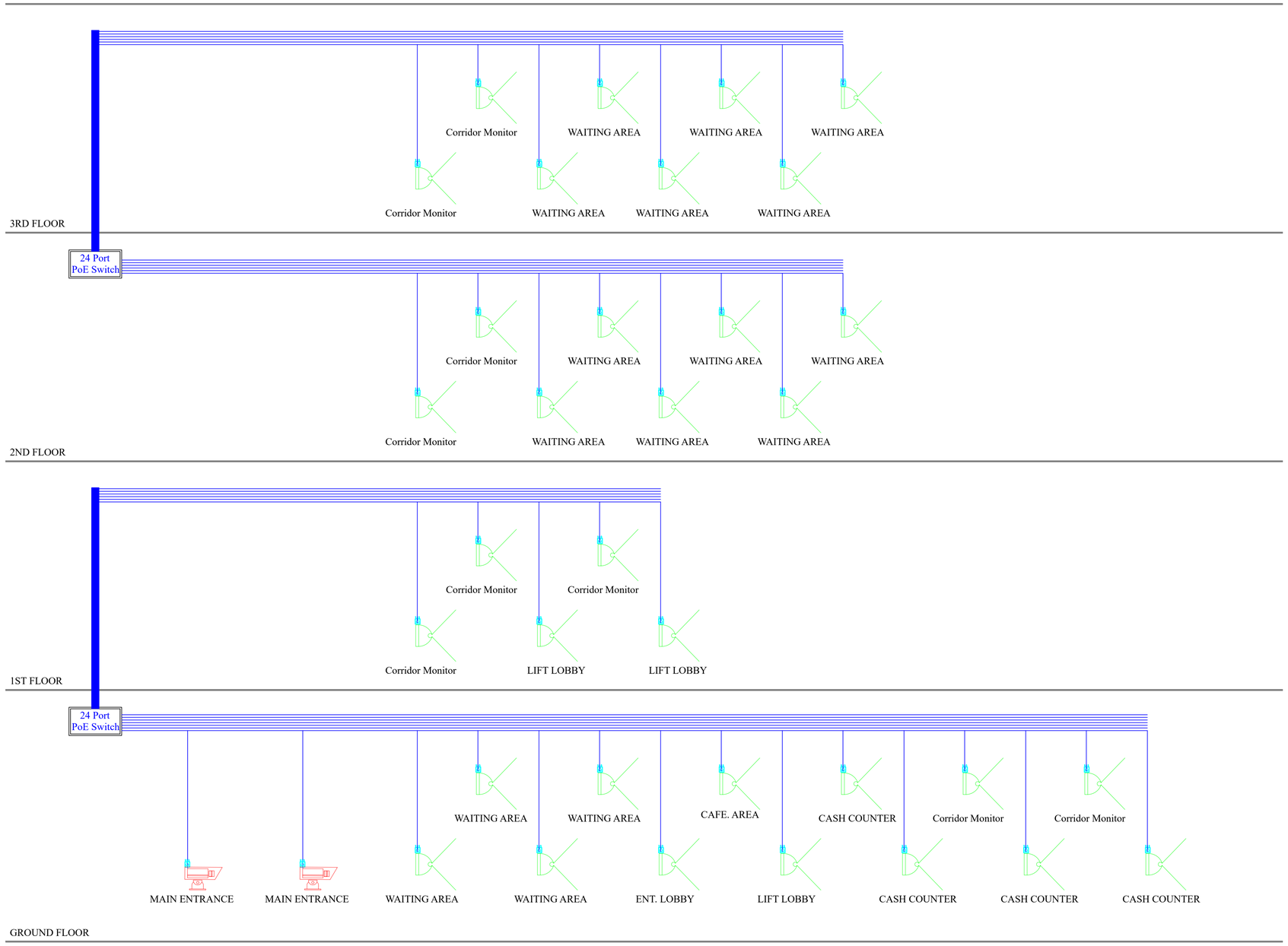
TATA MEMORIAL CENTRE (A C T R E C) PLOT NO 1 & 2 SECTOR– 22 KHARGHAR, NAVI MUMBAI

client

NAME & ADDRESS OF ARCHITECT

Wadia Techno Engg. Services Ltd. Mumbai

MASTER PLAN			
DRG.NO.	DATE	DRN.BY	CHK.BY
ACTREC-NM-PH-01-CCTV-MP-4000			
REV.NO			
R1	21.05.2024	Y.P	G.B
SCALE			
NTS			



Santhi Shadhan CCTV Schematic

PROJECT:
PROPOSED INFOSYS FOUNDATION ASHA NIWAS, ACTREC CAMPUS, NAVI MUMBAI

DONOR:
INFOSYS FOUNDATION, BENGALURU

CLIENT:
ACTREC, NAVI MUMBAI

DRAWING:
Shanthi Shadhan CCTV Schematic

IBMS CONSULTANTS:

Qpro Design Consultants Pvt. Ltd.

36A, BATHALA VINAYAGAR KOIL STREET, VIGNESHWAR NAGAR PUZHUTHIVAKKAM NANGANALLUR CHENNAI, TAMIL NADU 600 091

LEGEND

SYMBOL	DESCRIPTION
	DOME CAMERA
	BULLET CAMERA
24Port PoE switch	24 Port PoE switch

Note:
1. The design is tentative marking cameras, as per site condition will change design
2. The PoE switch location as per site condition condition to be marked

REVISION

DATE	R.NO	DESCRIPTION
21.05.2024	R0	DESIGN STAGE

DESIGN STAGE

DATE	21.05.2024
SCALE	NTS
SHEET SIZE	
DRG NO.	ACTREC-NM-VG-CCTV-SCH-400
DRN BY	Y.P
CHK BY	G.B

ARCHITECTS :